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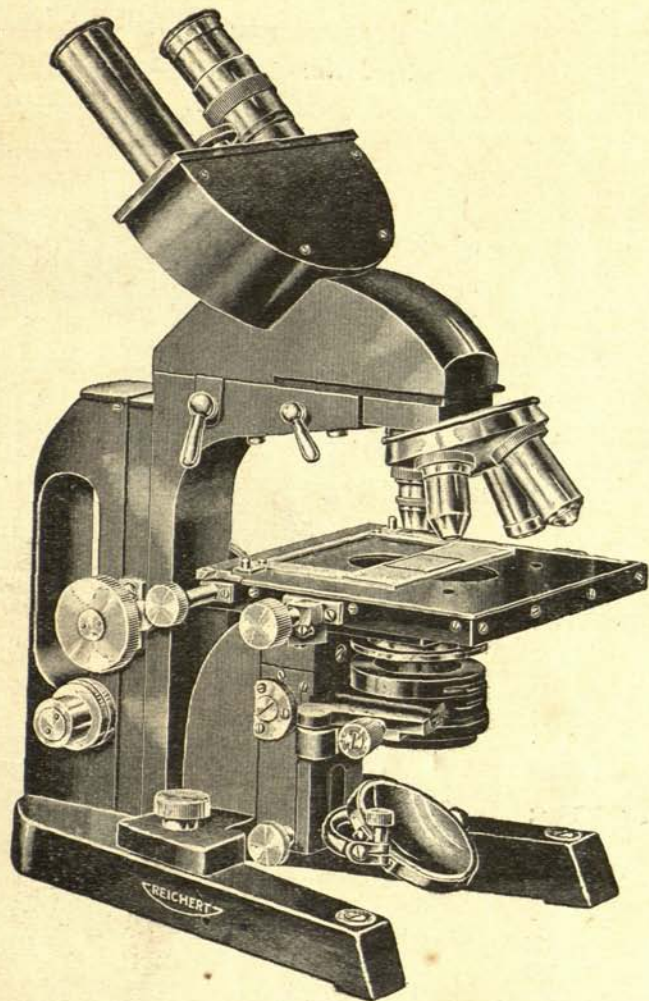


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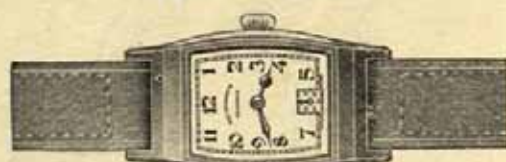
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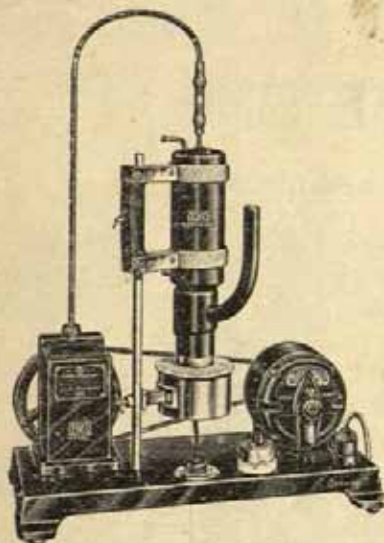
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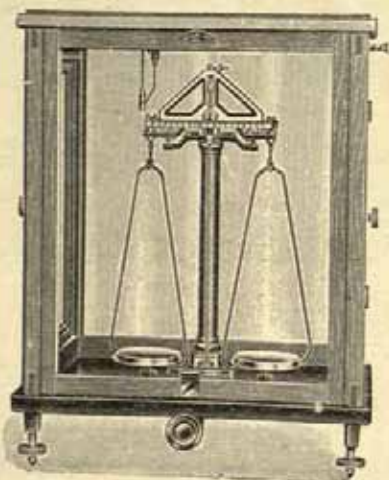
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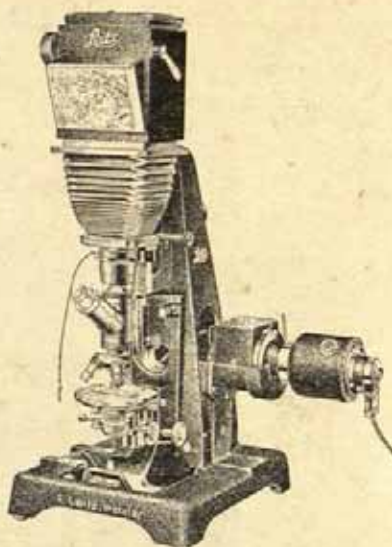
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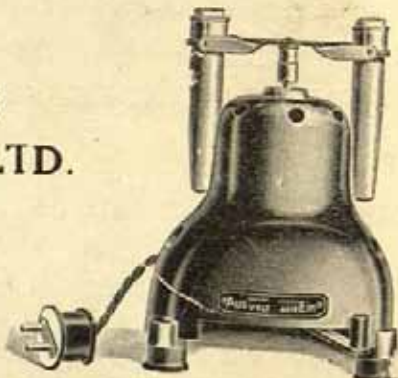


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EDITED BY

DR. P. C. BAGCHI, M.A., DR. ES LETTRES (PARIS)

PRINTED BY K. BISWAS AT U. RAY & SONS PRESS,
117-1, BOWBAZAR STREET, CALCUTTA.

PUBLISHED BY THE LOCAL SECRETARIES, PROF. S. K. MITRA AND PRINCIPAL B. M. SEN,
ON BEHALF OF THE RECEPTION COMMITTEE, 92, UPPER CIRCULAR ROAD, CALCUTTA.

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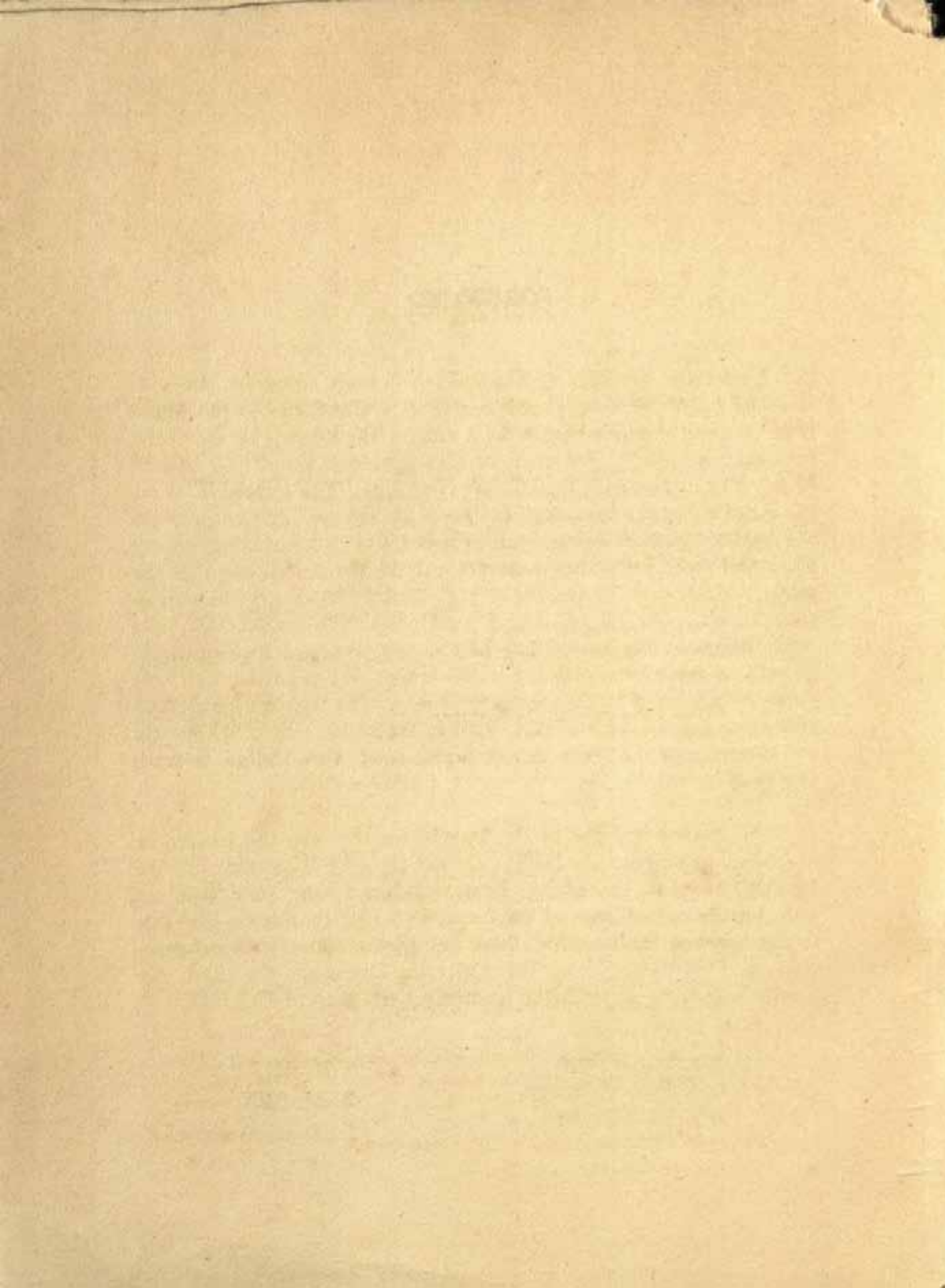
FOREWORD

Under the Statutes of the Indian Science Congress Association the Local Secretaries are required to distribute to the Members "a printed guide book with a map of the locality in which the Congress is held." Pursuant to this provision Dr. P. C. Bagchi M.A., Dr. es Lettres (Paris), has compiled "The Second City of the Empire" at the request of the Local Reception Committee. Since the establishment of British rule in India, Calcutta has been playing more and more important part not only in the development of the trade, industry and commerce of the country but also in the renaissance of the political and intellectual life of the nation. An outline picture of the varied life of the city with the history of its growth is, therefore, included in the book. We hope the book will prove more useful to the members than a mere tourist's guide and will serve as a souvenir of their visit to the second city of the empire on the occasion of the Silver Jubilee of the Indian Science Congress.

Our thanks are due to Dr. Bagchi for the care and trouble he has taken to prepare the book. He has thought fit to bring out the "guide" portion, containing general informations, in a separate part for the convenience of the members. Our thanks are also due to the Learned Bodies which have helped the editor with informations and particularly to The Calcutta Tramways Co., Ltd. for kindly supplying us with the tramway route map of Calcutta.

The 3rd January, 1938.
University College of Science,
92, Upper Circular Road,
Calcutta.

S. K. MITRA
B. M. SEN
Local Secretaries.



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The following books have been largely used for the compilation of this Handbook :—

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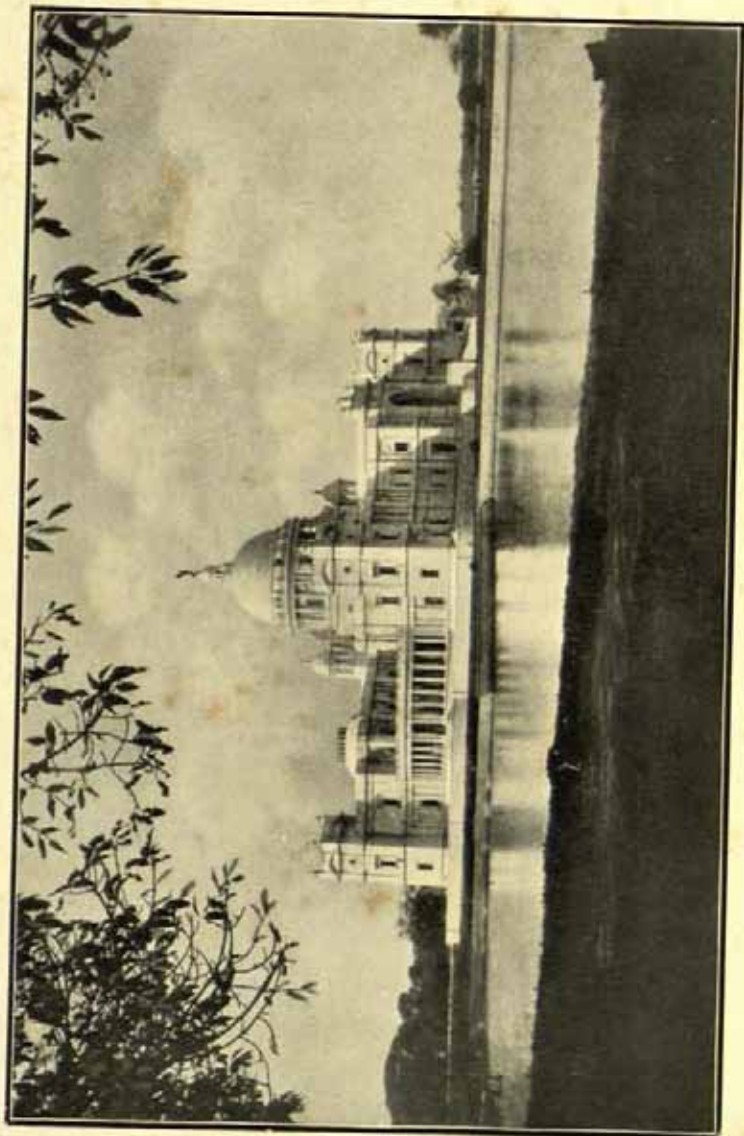
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CORRECTION

P. 17, L. 2 from the bottom—for "a Dolichocephalic"
read "a Brachy-cephalic".





VICTORIA MEMORIAL

THE SECOND CITY OF THE EMPIRE

CHAPTER I

BENGAL PAST AND PRESENT

CONFIGURATION OF THE COUNTRY

Bengal is bounded on the north by the Himalayas and on the south by the Bay of Bengal. Its western boundary reaches up to the Rajmahal Hills and the tableland of Chotanagpur. On the east the Garo and Lushai Hills separate it from Assam. Of an approximate area of 86,000 square miles the larger portion of the country occupies the alluvial plains of the two mighty rivers of India, the Ganges and the Brahmaputra. The lower Bengal is entirely a deltaic formation, the mouths of the two rivers covering an area of about 200 miles in width. Hence the elevation of the Bengal plains from the sea is rarely higher than 300 feet.

Of the complicated river system of Bengal the two main channels are the Ganges and the Brahmaputra. After it had passed the slopes of the Rajmahal Hills the
The river system Ganges receives the waters of a number of tributaries of which the Mahananda and the Atreyi are the principal. As the river swells with a larger supply of water and ever increasing quantity of silt which it

carries for over a thousand miles, unable to carry its burden farther the river splits itself into many channels. The Ganges is thus divided into two main channels, the eastern the Padma and the western the Bhagirathi or the Hooghly which constitute the two boundaries of the Gangetic delta. Numerous channels and waterways intersect this region.

The delta of the Brahmaputra commences where the river rounds the Garo Hills. The Brahmaputra also receives the waters of a number of tributaries amongst which the Teesta and the Karatoya are principal. It then divides itself into a number of channels of which the western one, now called the Jamuna meets the Padma near Goalund and the combined stream flows into the bay. The principal channel of the Brahmaputra, called Meghna in its lower course, forms the eastern boundary of its delta which also like the Gangetic delta is intersected by a large number of waterways. Two important rivers of Western Bengal the Damodar and the Rupnarayan irrigate a considerable portion of Western Bengal.

The complicated river system of Bengal has behaved very strangely in course of ages. The rivers of Himalayan origin in their upper courses often illustrate the phenomenon known as "river capture" or "piracy". It means the rapid head-erosion of the main transverse streams. The river thus takes altogether a new course and the old course loses its volume of water and previous importance. Different areas of Bengal have considerably suffered on account of this whim of the rivers. The Teesta in North Bengal which once poured its waters into the Karatoya now flows into the Brahmaputra direct and this has affected the Karatoya considerably. The Karatoya is now almost a dead river and the prosperous cities of Bengal which once flourished on its banks have now disappeared. A very powerful river which had once originated from the head-erosion of the Ganges and for which it was fittingly called Mathabhangha even in the beginning of the last century formed the main axis of the irrigation system of Central Bengal. It is now a dead river and the Padma which was in the 18th century a small irrigation canal, swollen with the supply of the main

water of the Ganges gradually increased in bulk till it assumed its present enormous shape.

Continual accumulation of silt also is the cause of the disappearance of such rivers as the Jelengi, the Bhairav which were powerful rivers even fifty years ago.

It is probable, as Sir William Willcocks has said, that most of the rivers of Bengal originated from the overflow irrigation system of Bengal. He is guided in his assumption by the evidence of an eye-witness, **Ancient system of irrigation** Bernier, who visited India in the middle of 17th century (1660). About Bengal Bernier has said "From Rajmahal to the Sea is an endless number of canals, cut in bygone ages from the Ganges by immense labour, for navigation and irrigation". Some English accounts of the beginning of the 19th century also tell us that there were dikes to check the inundations and "reservoirs and dams constructed for irrigation." The account further says "There are stupendous dikes, not altogether preventing inundation but checking its sudden excesses and dams advantageously constructed assist the cultivation of considerable tracts". Sir William Willcocks distinguishes the following features in the ancient irrigation system of Central and Western Bengal :—

- (i) The canals were broad and shallow carrying the crest waters of the river floods, rich in fine clay and free from coarse sand.
- (ii) The canals were long and fairly parallel to each other and at the right distance from each other for the purposes of irrigation.
- (iii) The irrigation was performed by cuts in the banks of the canals, which were closed when the floods were over. These artificial cuts are still called "Kanvas" or "Kanas" which mean 'that which is cut'.

When this overflow system of irrigation fell in neglect the country became a prey to malarial fever which has been creating

havoc in Bengal since the end of the last century and for want of proper supply of muddy water floods the arable lands have been gradually losing their fertility.

GEOLOGICAL FORMATION

Although Bengal occupies largely the alluvium of the Ganges and the Brahmaputra it has a geological interest of its own. The alluvium entirely belongs to the Pleistocene system of formation. Its thickness varies from about 1,000 feet below the level of the sea and the highest elevation attained by the plains is only 900 feet above the sea level. This alluvium is composed of three different strata :—

3. the deltaic deposits which are recent;
2. the newer alluvium or *Khadar* deposits;
1. the older alluvium or the *Bhangar* deposits of the Ganges valley.

The accumulation of these deposits is still in progress and the stages are not well marked. Yet it is certain that the *Bhangar* forms the older alluvium of Bengal and belongs to the Pleistocene. The *Khadar* deposits pass from the Pleistocene into the recent and imperceptibly merges into the deltaic accumulations. The delta of the Ganges and the Brahmaputra is constituted by the *Khadar* deposits. They contain only the organic remains of living species of animals like horses, elephants, oxen, deer, buffaloes, crocodiles etc. whereas the *Bhangar* has revealed *elephas antiquus*, extinct species of rhinoceros, *hippopotami* etc.

Besides the Pleistocene system of formation another formation belonging to the Pliocene epoch known as the *laterite* has been discovered in some parts of Bengal. It is “a vesicular clay-rock composed essentially of a mixture of the hydrated oxide of alumina and iron.” On account of a preponderating element of this iron oxide

the colour of the laterite is red. It has two different strata called—the *high-level* laterite and the *low-level* laterite. The former only, which is never found below 2,000 feet above the sea level occurs in Bengal. It covers the summits of the Rajmahal Hills.

The remains of what is known as the Gondwana period of geological formation have been discovered in some parts of Bengal.

Gondwana
remains

The Gondwana system has three strata—3. the upper Gondwana, 2. the middle Gondwana and 1. the lower Gondwana. The upper Gondwana system is represented in Bengal in two localities—the Rajmahal Hills and the Damuda valley. The Rajmahal series of upper Gondwana rest on the Rajmahal Hills on the Kamthi sandstones of which the upper layer is locally called the Dubrajpur sandstone. The whole mass of the Rajmahal Hills is made up of volcanic flows together with interstratified sedimentary beds of siliceous and carbonaceous clays and sandstones. The same formation is discovered in the coal fields of the Damuda region. The middle Gondwana system is represented by the Kamthi sandstone of the Rajmahal Hills.

The lower Gondwana system consists of two strata—the upper or the Permian is represented by the Damuda series in the Damuda area in Bengal and the lower by the Talchir series which is so called from the name of a district in Orissa. The Talchir stage is widely prevalent in all places from the Rajmahal Hills to the valley of the Godavari and from Ranigunj in Bengal to Nagpur. The thickness of this system varies from 300 to 400 feet. The Damuda series is represented by three distinct stages namely:

3. The Ranigunj stage.
2. Iron stone shale stage.
1. Barakar stage.

“It is in the Damuda series that the most valuable Indian

coal-seams occur. The associated rocks are all sandstones and shales, which sometimes attain a thickness of 10,000 feet. The iron-stone shale is so called on account of the lenses of clay iron-stone which supply a valuable iron ore."

Remains of more ancient geological epochs in India which are called respectively Dravidian, Purana and Archæan are also found in Bengal. Remains of the Archæan system consist of the crystalline and gneissic rocks. The eastern part of the Himalayas from Nepal eastwards represents a continuous crystalline zone. The Dravidian Purana and Archæan Himalayan gneiss is the central and the fundamental gneiss. The Bengal gneiss is a highly foliated heterogeneous composition. In North Bengal it forms semi-circular dome-like hills through weathering effect. This is called *dome-gneiss*. The Bengal gneiss facies are found in the district of Manbhum and some parts of Bihar. Remains of another system known as the *Dharwar system* can also be discovered in some parts of Bengal. It developed out of the sediments of the older Archæan gneiss deposited on the bed of the sea through weathering effect. The entire Shillong plateau of the Assam ranges and the central and the northern zones of the Himalaya represent this system.

Thus although the greater portion of Bengal from the Rajmahal Hills and the Garo Hills to the Bay of Bengal belongs to the Pleistocene system of formation patches of earlier systems are found around this alluvium. Remains of the Archæan, the Purana and the Dravidian epochs are generally found in the north along the Himalaya, its slopes and in Assam whereas the portions of the ancient Gondwana land with all its strata are found along the western fringe of Bengal from the valley of the Damodar up to the Rajmahal Hills and supply the mineral wealth of Bengal. The principal ore-deposits of the country namely those of gold, manganese, iron, copper, mica etc. belong to the Dharwar system and the associated rocks. The Dharwar system is also rich in its resources of building materials. The laterite or the red sandstone belonging to the Pliocene forms the upper layer of the Rajmahal series.

STRATA OF GEOLOGICAL FORMATION

Aryan

Recent—Newer alluvium, *Khadar* deposits of the Ganges and the Brahmaputra ;

Pleistocene—Gangetic older alluvium, *Bhangar* deposits ;

Pliocene }
Miocene } —Laterite (high-level), Himalaya ;

Gondwana, Upper—Jurassic, Rajmahal series ;

Gondwana, Middle—Triassic ; Maleri, Kamthi, Panchet series ;

Gondwana, Lower—Permian, Damuda series ; Permo-carboniferous, Talchir series ;

Dravidian

Ordovician—Central Himalaya ;

Cambrian—Haimanta system of Central Himalaya ;

Purana

Torridonian—Baxa series of Eastern Himalaya,
Central Himalaya ;

Archaeon

Dharwar system—Shillong Plateau, Eastern Himalaya ;

Gneiss and Granite—Bengal and Assam gneiss.

CLIMATOLOGICAL CONDITION

The climate of Bengal which depends on the variety of meteorological conditions is characterised by two features : firstly it represents a combination of the conditions of tropical and temperate zones and secondly it represents extreme monsoon conditions. Thus in certain parts of the year tropical heat, heavy and frequent rain and fierce cyclones are prevalent while in another

period of the year the temperature is moderate and there is rain with shallow extensive storms. The climate is dominated by what is known as monsoon conditions. "These conditions are the prevalence of dry land winds, with little cloud and rain during one half of the year, and winds of oceanic origin, with high humidity, much cloud and frequent rain, during the other half." Bengal thus does not represent an isolated meteorological area. The climatic conditions are determined primarily by outside influences although the presence of the Himalayas in the north which has an average height of 20,000 feet exercises a considerable influence in the determination of the climatic conditions of the Gangetic valley.

Over the belt of high temperature in the oceans near the equator there is a continuous ascensional movement and an outflow in the upper atmosphere northwards and southwards with an indraught from the north and the south in the lower strata. The pressure is lowest near the equator and increases northwards and southwards to 35° - 40° North and South latitude. This permanent air movement and pressures are modified by the presence of the Asiatic continent and converted into the monsoon or the periodic air movement. This movement is of two kinds, the north-eastern monsoon and the south-western monsoon.

(i). The north-eastern monsoon is of continental origin and is dry except when it reaches the high seas. This condition prevails from December to May. From December to February the temperature is low and during the next three months (March to May) the temperature is higher. During the first three months the weather is bright and sunny with clear or lightly clouded sky. Storms in this season are a phenomenon of the upper current of the air. During the next three months (March to May) due to the interaction of the dry and damp winds supplemented by the action of the hills vigorous thunderstorms occur in Bengal and Assam and these are called the "nor-westers." "Sometimes they develop into tornados which are the most intense forms of revolving whirls. Though they are not very extensive in diameter they advance quickly and cause great destruction of life and property.

(ii) The south-western monsoon is the cause of prosperity of at least five-sixths of India and of almost entire Bengal. Proper monsoon conditions prevail in Bengal from June to September and this is the period of advancing monsoon and the next three months (September to December) is the period of retreating monsoon. The winds are of oceanic origin and they cause heavy rainfall. This wind has two currents, the Bay of Bengal and the Arabian sea. The field of activity of the first current is mainly Bengal, Assam and greater part of the Indo-Gangetic plains. A portion of the second current also reaches Bengal but its principal field is the Bombay coast and the Deccan.

RAINFALL (IN INCHES)

	Jan.-Feb.	March-May	June-Oct.	Nov.-Dec.	Total
Delta of Bengal	1.64	15.58	60.78	1.38	79.38
Brahmaputra Valley	2.37	23.99	64.99	1.01	92.36
Indo-Gangetic Plains	1.31	3.72	41.85	0.58	47.46
Eastern—					
Himalaya and sub-Himalayan zone	1.27	6.35	56.51	0.33	64.46

TEMPERATURE (FAHRENHEIT)

	Jan.	Feb.	March	April	May	June	July
Calcutta	66.2	71.2	80.2	85.7	86.0	84.8	83.3
Chittagong	66.8	70.7	77.2	81.3	82.0	81.6	81.2
Darjeeling (7376 ft.)	40.8	41.8	49.4	55.6	58.2	60.7	61.9
	Aug.	Sept.	Oct.	Nov.	Dec.	Mean	
Calcutta	82.7	82.9	80.5	73.0	66.3	= 78.5	
Chittagong	80.8	81.6	80.0	74.4	68.1	= 77.2	
Darjeeling	61.4	59.8	55.2	48.3	42.7	= 53.0	

FLORA AND FAUNA

The flora of India is extremely varied. It is due to the various degrees of latitude both temperate and tropical, the surface of the country which rises from the level of the sea to heights above the limits of vegetation, its climate which varies from the torrid to the arctic and from almost absolute aridity to a maximum of humidity. Immigration of plants also has taken place from quite different bordering countries notably "of Chinese and Malayan on the east and south, of Oriental, European and African on the West and of Tibetan and Siberian on the north." The various elements of the Indian Flora in order of importance are (i) Malayan, (ii) Oriental and European, (iii) African, (iv) Tibetan and Siberian and (v) Chinese and Japanese.

India is divided into nine Botanical Regions of which the two which concern Bengal proper are: (i) The Esatern Himalayan region extending from Sikkim to the Mishmi Hills in Assam, (ii) The Gangetic plain region of which the lower Gangetic region and the Sunderbans fall within Bengal proper. These two subdivisions of the Gangetic plain represent *India Diluvia* and *India Littorea*. The Eastern Himalayan region of which Sikkim only has been explored has yielded about 4,000 species of Flowering plants under 160 natural orders, about 250 Ferns and their allies. The total number of recorded Orchids is 440, of Palms 20 and of *Bambusae* about 23.

The Flora of Bengal proper is characterised by a luxuriant evergreen vegetation. The villages are buried in Groves of Mango, Figs, Bamboos, Betel-nut Palm, Palmyra, Phoenix, and Coco-nut. The trees are of many kinds and it is difficult to distinguish the indigenous from the introduced. In the *Jhil* or waterlogged districts of East Bengal a number of aquatic plants like *Cyperaceae* and *Gramineae* prevails. The Orchids are few in Bengal and the existing species are mostly terrestrial.

The estuarial flora of Bengal found in the Sunderbans or the Gangetic delta presents the most important botanical species in India. "This is due to the saline properties of the water and to the tidal action on the land. The islets of the Sunderbans are in

The flora of the Sunderbans great part clothed with a dense evergreen forest of trees and shrubs, amongst which the various Mangroves hold the first place, with an undergrowth of climbers and herbaceous plants together with Typhaceae, Gramineae, and Cyperaceae. Two gregarious Palms form conspicuous features, the stemless *Nipa fruticans* in the swamps and river banks, with leaves thirty feet long, and the elegant *Phoenix paludosa* in drier localities, as also do the cultivated coco-nut and betel-nut palms. The principal exceptions to these forest clad tracts are the sand hills occurring at intervals along the coasts facing the sea, the vegetation of which differs from that of the inland muddy islands and grassy savannahs which become more frequent in advancing eastward towards the mouth of the Meghna." In all about two hundred indigenous species of Flowering plants, under seventy-two orders and seventeen Ferns and their allies constitute the Sunderbans Flora.

The Fauna of Bengal is not isolated from the fauna of other parts of India. India proper is ordinarily divided into two zoological areas, namely the Cis-Gangetic which includes the whole of Indian Peninsula from the base of the Himalayas and as far east as the head of the Bay of Bengal together with Ceylon and the second comprises the forest clad Himalayas, Assam and Burma as far south as Mergui and thus the whole of the Trans-Gangetic portion of India.

Of the extinct types of animals it should be noted that remains of animals closely related to the Chimpanzee of Africa and the Malay Archipelago occur in the Pliocene Siwalik beds at the base of the Western Himalayas. This shows that Simiidae or Apes distinguished by the absence of tails once inhabited India. Remains of no less than seventeen kinds of Indian elephants belonging to the Tertiary times have also been discovered in India.

As Bengal includes portions of the two main zoological areas referred to, its fauna is necessarily extremely varied. The Indian Fauna is estimated as follows :

	Genera	Species
Mammals	115	401
Birds	593	1,617
Reptiles	146	534
Batrachians	24	130
Fishes	351	1,418

Among these, two kinds of monkeys the common one generally known as *bandar* which is small in size and the bigger ones called *Hanuman* are found in large numbers in Bengal as elsewhere in Northern India. Tigers amongst which a species ordinarily known as Royal Bengal Tiger are found in the Sunderbans. About 40 years ago the number of human victims of this ferocious animal in Bengal only, was about 700 per year. A special kind of Rhinoceros with one horn (the Javan Rhinoceros) is also found in that area. Several kinds of whales, the more common being the Sperm Whale (*Physeter Macrocephalus*) are found in the Bay of Bengal and in the Ganges and the Brahmaputra the *Susu* or the Gangetic Dolphin (*Platanista Gangetica*) besides a variety of crocodiles are found. Amongst snakes the *Raj-sap* or the King-cobra is very common in Bengal. Bengal presents also a large variety of fishes both of saline and fresh water and thus justifies the name *Ichthyophagi* which the Classical geographers once gave to the people of lower Bengal.

LANGUAGES OF BENGAL

The principal language spoken in Bengal is called Bengali. It is the mother tongue of about 50 million people and is thus the speech of the largest number of people in

Indo-Aryan India. In Bengal about 92% people speak it.

Bengali is an Indo-Aryan language which belongs to the Indo-European linguistic family. It descended from the Eastern Branch of the Old Indo-Aryan called Mâga-

dhî and is a sister language in relation to Bihari, Oriya and Assamese. An extensive literature covering a period of about 1,000 years from the 10th century up to the present day helps to determine the stages of the development of the language. These stages are principally three: Old Bengali (950-1200 A.D.), Middle Bengali (1200-1800 A.D.) which again has three distinct stages of development from a transitional stage to late middle Bengali, and the Modern Bengali which roughly commences from the beginning of the 19th century. Through all these stages of development the language has preserved its Indo-Aryan characteristics both in phonology and morphology and presents a phenomenon in linguistic development which is comparable in all its details to what is observed for example in the development of modern languages of the Latin family from old Latin. In course of development the inflexional system of the language has undergone a considerable change from the complex to the simple and a striking phonetic decay has taken place. The language has however borrowed in course of its development ancient forms of words from the great storehouse of Sanskrit literature and the old forms by the side of its newer forms give a colour of complexity to the language. It has also borrowed words from the different families of languages spoken on the borderland like Dravidian, Austric and Tibeto-Burman. The Middle Bengali vocabulary enriched its stock from the languages of the rulers of the country, Persian and Arabic. Modern Bengali has also been borrowing from Portuguese, French, Dutch and specially from English.

Languages of another family namely the Austric, which is itself a branch of the Austro-Asiatic family are spoken in some parts of Western Bengal. The Austro-Asiatic is a family of language which prevails in Upper Burma, Indo-China, Malay Peninsula, the Islands of Polynesia, Melanesia up to Australia. On the Eastern frontier of Bengal in the Khasia Hills of Assam the Khasi language belongs to this family. The various languages of this family are spoken over a wide area in Chotanagpur, and also in some

Austric

parts of Orissa and Madras. The Austric languages spoken in Bengal are Santali, Mundari, Kol and Ho of which the number of speakers are according to the last Census—896,075.

These languages are agglutinating; suffixes and infixes are piled upon till the meaning of a whole sentence is obtained. As even the pronouns are added as suffixes to the verbs in order to bring out different shades of meaning according to persons, the language is also called *pronominalised*. In the sound systems there is a series of consonants of which the pronunciation is abrupt or checked. They are not found in other languages of India.

The Dravidian family is represented in Bengal by the Malto which is spoken by a people called Maler who live in the Rajmahal Hills. They themselves believe that they migrated to their present habitat from the Canara country. The Malto is closely connected with another Dravidian speech which is known as Kurukh or Oraon spoken in Chotanagpur and adjoining portions of Central Provinces.

Languages belonging to another great family of language called the Tibeto-Burman, which itself is a branch of the Sino-Tibetan family are spoken along the Northern and North-Eastern frontiers of Bengal. Some dialects of these speeches are also spoken in some of the districts of Bengal and have considerably influenced the idiom of a number of northern and eastern dialects of Bengali. Tibeto-Burman is divided into three groups:

I. Tibetan Dialects—

Danjongka of Sikkim and Lhoke of Bhutan;

II. Himalayan Dialects—

(i). Lepcha or Rong

(ii). Dhimal, Limbu or Khambu—which are called pronominalised because they contain a strong pronominalised substratum of the Munda or Austric languages.

III. Assam-Burmese branch—

- (i). *Bodo group*—Bodo or Kachari, Koc, Mec, Garo, Dimasa, Mrung and Rabha;
- (ii). *Naga group*—A large number of small dialects including Naga, Mikir;
- (iii). *Kuki-Chin*—Meithei, Lushai;
- (iv). *Burma group*—Burmese, Aracanese.

LANGUAGES CLASSIFIED BY GROUPS.

(With the latest number of speakers in thousand)

Indo-Aryan—	...	...	49,372
Austrie—	...	...	896
Dravidian—	...	...	228
Tibeto-Chinese—	...	...	532
(i) Tibeto-Himalayan	...	...	144
a. Tibetan group—	...	...	14.4
b. Pronominalised			
Himalayan—	...	...	56.7
c. Non-pronominalised			
Himalayan—	...	...	72.7
(ii) Assam—Burmese branch—	...	...	384
a. Bodo group—	...	...	246
b. Kuki-Chin—	...	...	42.8
c. Kachin—	...	...	0.00
d. Burma group—	...	...	95
(iii) Unclassed—	...	...	3.79
Languages foreign to India—	...	...	53

THE PEOPLE

From the linguistic point of view the speakers of four different groups of languages—namely Aryan, Dravidian, Pre-Dravidian or Munda and Tibeto-Burman, live in Bengal. But language

is no criterion for the determination of race and for want of sufficient anthropometric data the problem of the races living in Bengal still remains an open question to a large extent.

Risley was the first to offer a theory on races of India and in that connection he also made some suggestions about the races living in Bengal. He discovered seven distinct types in the races of India viz. (i) Aryan, (ii) Dravidian, (iii) Mongoloid, (iv) Aryo-Dravidian, (v) Scytho-Dravidian (vi) Mongolo-Dravidian and (vii) Turco-Iranian. The population of Bengal according to him mainly consisted of the *Mongoloid* and *Mongolo-Dravidian* types. The former is represented by such tribes as Limbu, Lepcha, Murmi, Gurung, Bodo, Garo etc., who are speakers of the Tibeto-Burman languages. They are characterised by broad head, slightly yellowish dark complexion, scanty hair on faces, short stature, nose tending from fine to broad, flat face, and eyelids which are often oblique. The Mongolo-Dravidian type is represented by the Brahmins, Kayasthas etc., and the Mahomedans of Eastern Bengal. This type is characterised by broad head, dark complexion, plenty of hair on faces, medium stature, medium or broad nose.

The classification of Risley was soon found to be defective and has now been almost discarded. Ruggeri suggested a new classification of the people of India which was accepted by Haddon after a little modification. So far as the population of Bengal is concerned Ruggeri and Haddon have discovered in it the following types :—

- (i) *Proto-Australoid*—also called Pre-Dravidians who are represented in Bengal by the Santals, Munda, Kol and the allied tribes. This type is dolichocephalic, platyrrhine, dark-skinned, and of short or medium stature.

- (ii) *Brachycephalic Leucoderms*—represented by the larger number of the people of Bengal. This type is characterised by round heads with lower brachycephaly or mesocephaly, leptorrhine nose, flat face and skin varying from pale white to tawny brown.
- (iii) *Homo Asiaticus* or Mongoloid people represented by Lepcha, Bodo, Gurung, Chakma etc.

The Census of 1931 has accepted this classification in main lines and so far as the people of Bengal are concerned it has discovered (i) a Brachycephalic element characterised by medium stature, high head, flattened occiput, receding forehead, short and orthognathus face, long and highly pitched nose and a skin varying from pale white to tawny brown, (ii) a short dolichocephalic strain (iii) Mongoloid type of the sub-Himalayan region—which is brachycephalic, short and flatnosed and (iv) Mongoloid type of medium stature with longish head, and medium nose. Recent investigations have shown that probably another type also can be discovered in the people of Bengal. It is the dolichocephalic leptorrhine *Mediterranean type*. The anthropometric measurements taken in certain parts of Western Bengal show that a good proportion of certain castes has a cephalic index varying from 82.25 to 79.22 and nasal index from 68.98 to 64.28. Their stature ranges between 1615.79 and 1658.97. These somatic characteristics agree well with those of the Mediterranean type of southern Italy with C. I. between 78.4 and 82.1, N. I. between 69.49 and 69.77 and stature between 1604 and 1620.

Thus so far as can be ascertained from the available anthropometric data the people of Bengal presents at least four different types : (i) a Brachycephalic Alpine type, (ii) a short Dolichocephalic Proto-Australoid type, (iii) a Brachycephalic Mediterranean type, and (iv) a Dolichocephalic Mongoloid type. These may be considered to represent for all practical purposes the Aryan,

the Pre-Dravidian, the Dravidian and the Mongoloid races in Bengal.

RELIGION AND SOCIETY

The two main religions professed by the people of Bengal are Hinduism and Mahomedanism. Amongst the minor religions, Buddhism occupies the first place. Besides it there are also flowers of Christianity, Jainism, Zoroastrianism and other religions professed mostly by the immigrants in the big towns. The Census of 1931 enumerates also a number of followers of what is called by it "Tribal religion" or Animism. A certain number of people of the Munda and Tibeto-Burmese stock belong to this category. But the report refers to the growing tendency of these people to call themselves Hindu. The strength of the followers of these religions in Bengal is as follows:

Muslim	...	...	27,810,100
Hindu	...	...	22,212,069
Tribal	...	...	529,419
Buddhist	...	...	330,563
Christian	...	...	183,067
Others	...	...	22,120

The Muslims of Bengal represent 35.4 per cent of the total Muslim population of India. In Bengal they predominate mostly in Eastern Bengal in the Chittagong and Dacca Divisions where they constitute something between 70 and 73 per cent of the entire population. Most of the Muslims of Bengal belong to the Sunni sect. Followers of the Shia, Ahmadiya and other sects are extremely few and they are found either in Calcutta or in its neighbourhood.

The Hindus of Bengal form about 43.48 per cent of the entire population of the province. They predominate generally in Western and Central Bengal. The principal sects of the Hindus in Bengal are the Vaisnava and Shakta and there are besides the

Shaivas, Aryas of the Aryasamaja, and the Brahmas of the Brahma-samaja.

The caste-system prevails in the Hindu society of Bengal as elsewhere in India. The three principal Hindu castes of Bengal are the Brahmins, Baidyas and Kayasthas and they are recognised as the three higher castes of the province. The numerical strength of these castes is 3,116,856 out of a Hindu population of 22,212,069. The numerical strength of three lower castes viz. the Namasudras, Mahishyas and the Rajabanshis is however higher. The proportion of the Hindus of these different castes *per mille* can be enumerated as follows :

Brahmins	65 (of all Hindus)	28 (of entire population).
Kayasthas	70 ...	30 ...
Namasudra	94 ...	41 ...
Mahishya	107 ...	47 ...
Rajabanshi	81 ...	35 ...

Some of the other important Hindu castes of Bengal are :— Aguri (Ugra Kshatriya), Adi Kaivartta or Jalia Kaivartta, Bagdi, Barui, Bhumali, Dhobi, Goala, Jugi, Kahar, Kalua Tili, Kamar, Kaora, Kapali, Sadgop, Saha, Sunri, Sutradhar, Tanti and different classes of Banias like Shankha-banik, Gandhabanik, Su-varna-banik etc. The origin of many of these castes is occupational. The occupation of the Barui was the agriculture of betel leaves; the Dhobis were washermen, the Kamars iron-smith, Sutradhars carpenters, Tantis weavers, the Goalas milkmen and so forth. Through the spread of education and the economic pressure of modern age, a disintegration of the caste division has begun in Bengal, and many are giving up their former occupation and taking to new.

Many tribal people have also formed distinct castes within the Hindu fold. Such castes as the Bhumij, Bhotia, Garos, Koc, Kuki, Chakma, etc., are castes of tribal origin. The Hill tribes form a considerable portion of the population of Bengal and a very large number of them profess the Hindu religion. The

distribution of these people according to religion is as follows :

	HINDU	TRIBAL	BUDDHIST	CHRISTIAN
Himalayan	156,829	1,392	58,394	1,982
South-East Bengal	213,649	11,565	143,741	3,044

Some of the principal Hindu castes have also a number of subdivisions. For example the two important subdivisions of the Bengal Brahmins are the Varendra and Radhiya. This division though primarily geographical, Varendra being the name of North Bengal and Radha that of West Bengal, has restricted the social intercourse between the two classes to a large extent. The Kayasthas are similarly divided into Uttara Radhiya, Dakshina Radhiya, Bangaja etc. Tendency to amalgamate these various sections has been growing in recent years and cases of intermarriages between them are increasing in number.

ANCIENT AND MEDIAEVAL BENGAL

Remains of any prehistoric culture have not been discovered as yet in any part of Bengal proper. Archæological finds, of historical period, although few, throw some light on the early history of Bengal. The oldest inscription so far discovered comes from a place called Mahasthan in the District of Bogra in North Bengal. It belongs to about the second century B. C. and is written in a script and language similar to those used in the inscriptions of the Maurya king Ashoka. We do not get any epigraphic record for a long time till we come to the 5th century A. D. An inscription of this period comes from the Susunia rock in the Bankura District and five others of a little later period, of about the middle of the 5th century comes from North Bengal, one from an old site called Paharpur, not far from Mahasthan and the four others from a place called Damodarpur in the District of Dinajpur. In the period from the 8th to the 12th century during which Bengal rose into great political prominence we get a fairly large number of epigraphic records issued by kings of the two dynasties called

Archæological
finds

Pala and Sena. Though these records come from various parts of Northern, Central and Eastern Bengal, the larger number of them were discovered in Northern Bengal in different places in the Districts of Rajshahi, Dinajpur, Rungpur, Bogra and Pabna.

Contemporary Indian literature and foreign records also help us considerably in the reconstruction of the early history of Bengal.

From these sources it can be ascertained that
Ancient Kingdoms ancient Bengal was divided into a number of small kingdoms namely Radha, Suhma and Tamralipti in Western Bengal, Samatata in Deltaic Bengal, Karnasuvarna and Pundravardhana in North Bengal.

From the available sources it can be further ascertained that till the end of the 6th century North Bengal formed a province of the Magadhan empire. The Gupta rulers of Magadha had direct control over the northern portion of Bengal and ruled the province with the help of a Governor. In the beginning of the seventh century Bengal asserted her political independence under a ruler known as Sasanka. Sasanka was originally the king of Karnasuvarna in North Bengal but taking advantage of the downfall of the central political power in Northern India he extended his territories and conquered Magadha in the north and kingdoms in the south up to the borders of the Ganjam district.

The political history of Bengal for about a century till the accession of the Pala rulers is full of uncertainties. The traditions would have us believe that one of the important Bengal rulers of this age was Adisura who was responsible for reformation of the Hindu society of Bengal which had degenerated. He is said to have brought to Bengal from Kanauj, the home of Brahmanical orthodoxy in that age, a number of Brahmins and persons of other higher castes and raised the status of the Hindu society.

The four centuries, from the beginning of the eighth to the end of the 12th, when Bengal was conquered by the Mahomedan invaders, constitute the most glorious period of the history of Bengal. The first of the two dynasties which ruled Bengal in this period is known as Pala. The Pala rulers played an important

role in the political history of Northern India. Their empire included a greater portion of Bihar and it was under their patronage that some of the Buddhist Universities of the period, like Nalanda, Vikramasila, Odantapuri and Jagaddala, attained a most flourishing state. The early rulers of the Sena dynasty maintained the tradition of the Palas and one of them, Ballala Sena was the second great reformer of the Hindu society of Bengal. However the later Senas ceased to play any important political role and their kingdom fell an easy prey to the Mahomedan conquerors. During the Mahomedan period of the history of India, Muslim Governors of Bengal Bihar and Orissa accepted the suzerainty of the Emperor of Delhi only nominally. Most of them ruled the province as independent rulers.

The ancient capitals of Bengal were all situated in North Bengal. The oldest was known as Pundranagara which continued to be an important city till the middle of the 7th century when the famous Chinese traveller Hiuan Tsang visited it. The ruins of the city have been identified with Mahasthan in Bogra District, situated on the once powerful stream, the Karatoya. Karnasuvarna the capital of Samsanka has been located in the district of Murshidabad. The later dynasties had their headquarters in different places, one of which Navadvipa (Nadia) was also the capital of the Senas. In the mediaeval times Gaur, in the District of Malda was the most flourishing city of Bengal and its capital. During the rule of the later Senas Vikrampur in Dacca had risen into importance and a branch of the Senas continued to rule there long after the Mahomedan conquest of Nadia. After the fall of Gaur in the 17th century Murshidabad became the capital of the Nawabs and Dacca, the seat of their Governors in Eastern Bengal.

Of all these cities Nadia has played the most important role in the cultural history of Bengal. The most famous lyric poet of Bengal, Jayadeva who lived in the 12th century and is widely respected all over India belonged to this city and wrote under the patronage of the last Sena king, Lakshmana Sena. In the 15th and 16th century

Ancient Cities

The part played
by Nadia

Nadia became the centre of all social, religious and intellectual movements. The logicians of Nadia departed from the canons of early Indian logic and founded a new school called *Navyanyaya* which was characterised by great complexity and subtelety. A social reformer called Raghunandan laid down the rules for the guidance of the Hindu society which still govern the Hindu society of Bengal. A neo-Vedantic movement was started from the same place by Madhusudana Sarasvati and Chaitanya laid the foundations of a new form of Vaisnavite religion which is still professed not only in Bengal but in many other parts of India.

THE ANCIENT PORTS OF BENGAL

There is no doubt that the country to the west of the Hooghly contained a number of prosperous cities and ports and formed part of an ancient kingdom. The port of Tamralipti (modern Tamluk) situated on the southern bank of the Rupnarayan about 12 miles from its confluence with the Hooghly, is mentioned in very early literature both Indian and foreign. It is referred to both as a port and as the capital of a kingdom, which was probably Suhma, in old Jaina texts which go back to the beginning of the Christian era. Amongst the Greek sources the *Periplus of the Erythrean Sea* of the second half of the first century A. D. mentions an important market-town on the Ganges called *Gange* and about a century later Ptolemy calls it the metropolis of a powerful kingdom called the *Gangaridai*, which is located by him along the delta of the river. The port of *Tamalites* (Tamralipti) is located by him a little higher up the river.

It is probable that Tamralipti or Tamluk was the only port of Bengal for a long time. It lost its importance in the 10th century as the river on which it was situated gradually silted up. It, however, continued its existence as a small market town till the advent of the Portuguese in Bengal who converted it into one of their early settlements.

With the decline of Tamluk as a port the centre of distribution was shifted to other places. Saptagrama or Satgaon, situated on the Saraswati, and not far from modern
 Satgaon Hooghly grew up to be an important port and took the place of Tamluk. The new port maintained its importance till the beginning of the 16th century when the river Saraswati silted up and the river began to flow down the main channel. Even up to the middle of the 16th century large vessels used to sail up to Satgaon with merchandise and during the reign of Akbar the city brought an income of about 30,000 Rupees.

During this period to the south-east of the delta another port, Chittagong (Chatigaon) had risen into prominence. Chittagong attracted the foreigners more than any other
 Chatigaon port so long as Gaur remained the capital of Bengal. After the fall of Gaur in the middle of the 17th century Chittagong also lost its importance.

After the decline of these two ports—Chittagong and Satgaon which were known to the Portuguese as *Porto Grande* and *Porto Pequeno* respectively—Hooghly which was only a small settlement of the Portuguese in 1580 rose to be the greatest centre of trade and commerce in Bengal.

From mediæval Bengali works like the *Chandi* of Mukundarama (1577 A.D.), *Manasamangal* of Vipradasa (1495 A.D.) etc., it is evident that the river courses were different from what they are now. The Adi-Ganga or the Tolly's Nullah which is now a small streamlet carried even in the 16th Century the main current of the Ganges. The lower Hooghly was in fact the lower Saraswati. There are evidences to prove that the lower Saraswati was connected with the Ganges by a canal from near Kidderpore to Sankerole and when the Saraswati silted up and the whole current made its way through the Ganges the canal widened up and the Hooghly assumed its present shape. The Adi-Ganga consequently suffered and lost the supply of more voluminous current. The map of lower

Bengal drawn by De Barros in the middle of the 16th century clearly shows that both the Saraswati and the Adi-Ganga were then prominent rivers.

The names of prosperous localities which existed in the 16th century on either side of the river are given in the *Chandikavya*.

Localities in the 16th century	These are Saptagrama, Garefa (Gouripur), Andalpara, Jagathal, Nowpara, Teliapara, Nunai Ghat, Mahesh, Sulkhia, and Bithoor
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(Betor or modern Howrah) on the right side, and Kurdaha, Konnagar, Kotrung, Kuchinan, Chitpur, and *Kalikatta* (Calcutta) on the left side, "Leaving on the right the way to Hijuji (Hijli) they turned to the left, passed Balughata, *Kalighat*, Mirnagar, Nachan-gacha, Vaisnavaghata, Barasat, Chatrabhuj, Ambribhuj, Hithagar and then came to Mogara." Most of these places are still familiar to us and though many other places in their midst have come into existence during the meantime they have not lost their identity.*

The Portuguese who were the first to come to Bengal first settled in Saptagrama in 1537-1538 and most probably erected a factory

The advent of
the Portuguese

there, and established a custom house. But as Satgaon gradually became unsuitable for their business on account of the gradual silting up of the river Saraswati, they diverted their attention to a neighbouring site, that of present Hooghly on the main channel of the Ganges.

THE NEW CITIES

At the beginning the Portuguese did not permanently stay in Bengal. They remained in Bengal during the rainy season buying

* A century earlier Vipradasa also gives a similar itinerary in his *Manasamangal* (1495 A.D.) and mentions most of the then prosperous places on either side of the Ganges. These are: Hooghly, Bhatpara, Boro, Kakinara, Mulajod, Gadulia, Paikpara, Champdani, Ichapur, Bakibazar, Mahesh, Khardaha, Rishra, Konnagar, Kotrung, Kamarhati, Ariadaha, Chitpur, *Kalikata*, Betor, Kalighat, Dhanasthan, Baruipur, Hulia, Chatrabhog, and Hathiagar.

and selling goods and went home to Goa when the rains were over. Later on the Portuguese remained for one or two years without going back and the Mahomedan collector in the district even invited them to bring their fathers and erect churches. Akbar seeing the precious goods which the Portuguese used to bring to Bengal from Borneo, Malacca and other ports ordered the Nawab of Dacca under whom the Hooghly district then was, to send from Satgaon two principal Portuguese to his Court in Agra. The Portuguese were not however available till the next year (1579-80) when two Portuguese under Captain Pedro Tavares went to Agra. Akbar was favourably impressed with the conduct of the Portuguese and had several interviews with Tavares. He gave him many valuable presents and a *farman* permitting him to build a city in Bengal wherever he liked. He granted the Portuguese full religious liberty with leave to preach their religion and build churches and even baptize the gentiles with their consent. Besides, the Mughal officers were ordered to help the Portuguese with all materials necessary for the construction of their houses.

Tavares returned to Hooghly in 1579-80, chose a favourable site there and established the settlement which soon grew into the greatest centre of trade in Bengal. The decline of Satgaon facilitated the development of Hooghly. In fact Satgaon would not have probably declined so rapidly if the Portuguese had not abandoned it and diverted their trade to their new settlement. There was some truth in the complaint which the Mughal officers lodged to their Emperor towards the end of the 16th century that the revenue of Satgaon was decreasing on account of the Portuguese.

Whatever it might have been due to, Satgaon soon lost its importance and Hooghly flourished with amazing rapidity. Towards the end of the century, probably in 1599, the Portuguese provided themselves with a fort. As to their doings we however know less. Only three names of their Governors have been preserved: Pedro Tavares (1580), Miguel Rodrigues (1623), and Manoel d'Azavedo (1632). As

The Foundation
of Hooghly

Prosperity of
Hooghly

to their doings some light is thrown by a contemporary account written between 1583 and 1589: "The Portingalles deale and traffique thether and some places are inhabited by them, as the havens which they call Porto Grande (Chittagong) and Porto Pequeno (Hooghly) that is the great haven and the little haven but there they have no Fortes nor any government, nor policie as in India (they have) but live in a manner like wild men and untamed horses for that every man doth there what he will, and every man is Lord (and maister) neyther esteeme they anything of justice, whether there be any or none, and in this manner doe certayne Portingalles dwell among them some here, some there, (scattered abroad) and are for the most part such as dare not stay in India for some wickedness committed; notwithstanding there is great trafficke used in those partes by diverse ships (and merchants) which all the year diverse times both go to and from all the Oriental ports." This information may not be exact and it is quite probable that under the Governors the Portuguese settlement of Hooghly was an organised one. In 1580 the Mughal Faujdar at Satgaon, Mirza Najat Khan, being defeated by the king of Orissa near Solimabad fled to the Portuguese Governor of Hooghly for protection.

Hooghly soon rose to be "the richest, the most flourishing and the most populous" of all the Portuguese settlements in Bengal. By this time the greater portion of the trade in Bengal had passed into the hands of the Portuguese and they had not only settlements in Satgaon, Hooghly and Chittagong but also in other places like Hijli, Banja, Dacca and other small ports. The extent of the Portuguese trade in Hooghly can be guessed from the fact that they paid over 100,000 tangas or Rupees as custom duties to the Mughals.

At the beginning of the seventeenth century the Portuguese power in India began to decline. The Portuguese in Hooghly "instead of confining their attention to the business of merchants had fortified themselves in that place and were become so insolent that they committed many acts of violence upon the subjects of the empire and presumed to exact duties from all the boats and vessels which passed

The fall of
Hooghly

their factory and had completely drawn away all the commerce from the ancient port of Satgaon, that the Portuguese were in the habit of kidnapping or purchasing poor children and sending them as slaves to other parts of India and that their pirates in consort with the Mughls committed innumerable aggressions on the eastern branch of the Ganges." Such were the causes which induced the Mughal court to take action against them. As a result an expedition was sent against Hooghly in 1632 which the Portuguese tried to resist but they were completely defeated, many were killed, some succeeded in escaping and the rest were taken prisoners to Delhi, and were treated as slaves. In 1633 the Portuguese were permitted to come back to Hooghly but they never regained their former power and political importance.

The Dutch in the meantime had obtained a *farman* from Shah Jahan in 1625 to erect a factory in Hooghly and to trade in Bengal.

The advent of
the Dutch and
the English

The Portuguese now found themselves unable to compete with them. After their defeat in 1633 they recovered their trade to a considerable extent and as late as 1660 they were the chief "inhabitants of Hooghly, all of them rich Portuguese for in those days they alone were allowed to deal in salt throughout the province of Bengal." But there were now other competitors on the scene and the British and Dutch had got important commercial concessions which led to the rise and growth of other trading cities to the detriment of Hooghly.

The Dutch established themselves at Chinsurah and the English who were till then trading in Madras and Orissa received a charter

Circumstances
which led to the
foundation of
Calcutta

from Prince Shuja, the viceroy of Bengal in the middle of the 17th century, to carry on their trade in Bengal subject to the payment of Rs. 3,000 per year. Late in the same century the English in Bengal declared war against the Mughal power as a protest against vexatious interference with their trade by the local officers. The English Company's agent Job Charnock ransacked Hooghly in 1686 but on

the Nawab of Bengal sending up troops in retaliation, Charnock was compelled to leave Hooghly, made a halt at Sutanuti which was a growing village on the left bank of the Hooghly and demanded compensation. The angry Nawab sent troops again. But eventually he was prevailed upon to accord permission to the English to carry on their trade at Hooghly as before. Next year in September Charnock stopped at Sutanuti again to recruit provisions and spin out the monsoon. Charnock was superseded by Captain Heath at about this time but after a brief withdrawal to Madras he with his council returned to Sutanuti for the third time in 1690, attracted by the generous offer of Rs. 60,000 by way of compensation made by the new Nawab, Ibrahim Khan, "the most famously just and good Nawab of Bengal."

Thus when the Portuguese trade was on the decline and the Dutch trade was still in its infancy the English being temporarily driven out of Hooghly were attracted by the village of Sutanuti and its surroundings. The river Hooghly from early days of European trade was not navigable for larger vessels higher up the Adi-Ganga (Tolly's Nullah) but lighter craft could transport to Satgaon and other places on either bank of the river the goods which the Portuguese disembarked at Garden Reach. This transshipment probably helped the growth of villages in the neighbourhood of the place of transshipment. After the fall of Hooghly in 1632 the native bankers (Seths) and Basaks came away from Hooghly and settled down in the village of Sutanuti. The villages in its neighbourhood Kalikata, and Kalighat are mentioned for the first time towards the end of the 15th century and were apparently not prosperous before the fall of Hooghly which diverted a portion of the native traders to this direction, and helped the growth of the future city of Calcutta.

CHAPTER II

CALCUTTA, ITS RISE & GROWTH

FOUNDATION OF CALCUTTA

Calcutta is situated in $23^{\circ} 33' 47''$ North and $88^{\circ} 23' 34''$ East along the left bank of the Hooghly, or the Bhagirathi which is the western arm of the Ganges. It is about 100 miles inland from the place where the river falls into the Bay of Bengal. A large section of the localities in the suburbs can be included under what may be called "Greater Calcutta." From one end to the other of this long line of garden houses, temples, mills, bathing ghats, burning ghats, dwelling houses, wharves, docks, etc. it would be nearly ten miles. The width of this line generally does not exceed two miles but near Kidderpore in the south it extends to more than four miles in width. The area of the city would be thus a little over 30 sq. miles. The river on which the city stands is less than half a mile in width near Howrah bridge but at other places this increases nearly to a mile. From north to the south of Greater Calcutta on the left bank of the river we find Cossipore, Calcutta proper, Maniktalla, Entally (N. E.), Ballygunge (S. E.), Kidderpore (S. W.), Alipore, Bhowanipur, Kalighat (S. Central) and Tollygunge as important centres of population. On the right bank of the river are situated Ichapur, Salkia, Howrah and Sibpore. The actual population of Calcutta is 11,96,734. The city is in constant communication with large towns in its neighbourhood like Serampore, Chander-nagore, Hooghly, Chinsurah etc.

But Calcutta came into existence only towards the end of the 17th century. Three small villages, Sutanuti, Govindpur and

Kalikata constituted the nucleus of the future premier city of India. If we go to still earlier times we have practically no evidence to prove the existence of any agglomeration of people worth mentioning on that side of the river on which Calcutta came to be founded.

From a geological point of view the lower Gangetic delta on which Calcutta is situated is of a comparatively late formation.

**The Gangetic
Delta**

Important boring operations were carried out in Calcutta during 1835-40 and the bore-hole in Fort William reached a depth of 460 feet below the mean sea level. The operations revealed a succession of beds of sand and silt and other river deposits, and a complete absence of marine deposits throughout the depth of the bore-hole. The existence of peat-beds at 30-35 feet and 382-395 feet below the surface was discovered, and fine sand and pebbles derived from the gneissic rocks were found at different depths viz., at 170-180 feet, 320-325 feet and 400-480 feet. More recently a tube well was sunk at Garden Reach to a depth of over 800 feet, and was successful in obtaining fresh water. This success has encouraged the local municipality to sink a tube well to the same depth, and samples of the strata penetrated are being collected by the Geological Survey of India for detailed study.

According to the calculation of James Fergusson, who made a most careful study in 1863 of the growth of the Ganges delta, the lower Gangetic plains below the Rajmahal Hills came to

**Formation of
the alluvium**

be elevated by fluvial deposits about four or five thousand years ago. In the region of Calcutta the elevation of the area has however been alternately followed by a subsidence, and even in historical times the extreme south-eastern portion including the districts of Khulna, Jessore, the Sunderbans and Calcutta was not fully formed in the 7th century of the Christian Era when East Bengal was sufficiently inhabited to form the nucleus of a kingdom.

The name of Calcutta has not yet been satisfactorily explained.

There are various theories on the origin of this name and a number of explanations of the etymology of the name is current. The most probable theory is that which tries to derive it from the word *Kaliksetra* (Kalikhetta—Kaliketta—Kalikata). The name is mentioned as Kalikata for the first time by Vipradasa in his *Manasamangal* (1495 A. D.). In c. 1590 the Ain-i-Akbari refers to Kalikata as one of the three Mahals (Kalikata wa Bakoya wa Barbakpur). Dr. S. K. Chatterji, who is an expert philologist would explain the name as "the side (*i.e.*, place or depository) of shell-lime for white-washing" (*kali* means shell-lime, *kata* from *kat* means side, place). Kalikata was according to him originally a place where shell-lime used to be deposited for sale.

The name of Calcutta

Selection of the site: its advantages

In 1690 when Job Charnock was offered an asylum at Hooghly by the Nawab he deliberately turned out the latter's offer and decided to settle down in Calcutta. He realised that Calcutta being nearer the sea than Hooghly, not only afforded better facilities for trade but also for withdrawal into safety in case of defeat. Its situation on the eastern bank of the river rendered it strategically more secure from attacks by Mahrattas and Mughals. The place was free from political intrigues current in Hooghly. Yet Calcutta was not then a howling wilderness. The Seths and the Basaks had already set themselves up. The pilgrim's road leading to Kali's temple (modern Chowringhee with its northern and southern extensions) provided as good a communication with the interior as was possible in those days. Provisions were plentiful and the soil fertile. On the east it was protected from invasion by an extensive salt lake. Besides large vessels could reach up to it and no transshipment was necessary. The only difficulty was that the place was swampy and unhealthy.

All this is not merely an after-thought. Charnock seems to have meditated on these manifold advantages of Calcutta under the spreading peepul tree which stood at the junction of the Bowbazar



THE TEMPLE AT KALIGHAT



THE SACRED ADI-GANGA

Street with Lower Circular Road when in common with other European traders he halted on his way to Hooghly. It was the favourite Baitakkhana or rendezvous of all traders where they enjoyed their hookkahs in a leisurely way in those leisurely days. The historic tree stood there throughout the eighteenth century but was removed as late as 1820 under orders of the Marquess of Hastings in connection with his plans for the improvement of the city.

In 1690 Job Charnock issued a proclamation inviting various nationalities to come and settle in the Company's zemindaries—the three villages of Sutanuti, Calcutta and Govindpur. He gave them special immunities and offered advantages to induce them to establish themselves in the new settlement. The

Proclamation of
Charnock—the
first settlers of
Calcutta

Portuguese, the Armenians, the Hindus, the Moslems and other nationalities began to come. Prior to the days of Job Charnock the Armenians had formed a small commercial settlement in the village of Sutanuti. Many responded to the overtures of Charnock and congregated at the northern extremity of the settlement. The Portuguese and the Armenians came from Chinsurah. The Armenians specially, proved themselves very useful to the British, and afforded an excellent medium through which the English reached the native markets. They enjoyed the privileges of citizens, and several of them rose to positions of wealth and influence.

Thus the establishment of the English factory at Calcutta or more precisely at Sutanuti was a deliberate act on the part of Charnock. Since its foundation Charnock became the first Governor of the establishment. But as a Governor he gradually grew into an irresponsible autocrat. He "reigned more absolutely than a Raja, only he wanted much of their humanity, for when any poor ignorant native transgressed his laws they were sure to undergo a severe whipping for penalty and the execution was generally done when he was at dinner, so near his dining room that the groans and cries of the poor delinquents served him for music." He died on January 10, 1692 and was buried by the grave of his wife who was an Indian. His son-in-law Charles Eyre erected a mausoleum over the tomb which

Calcutta under
Charnock

is still to be found in St. John's Church-yard although not in its original form.

Charnock was succeeded by his second in command, Ellis, a man of little character and ability. Although an Imperial order had been obtained as early as 1691 permitting the English to "contentedly continue their trade" on payment of Rs. 3,000 a year by way of all dues yet nothing had been done to clear jungles, construct roads or build houses. The early traders lived either in mud hovels or in the cabins or forecastles of their ships or worse still in small country boats in the stifling heat and torrential rains of Calcutta. Charles Eyre who now became the Agent was a man of commanding personality and character full of initiative and enterprise. Within a few months of his assumption of office the Agent's cutcha house caught fire and was promptly rebuilt of brick. But being considered to be at "a considerable distance from the factory, it was disposed of by outcry and fetched Rs. 575/-." On June 25, 1695 a severe storm blew down many of the houses erected by Eyre, notably the "lodging rooms" for the servants of the John Company.

GROWTH OF CALCUTTA

Eyre's administration is chiefly noted for the commencement of the Old Fort. Shova Singh, the chief of Chatwa-Barda in Midnapur revolted and seized Hooghly and Murshidabad and prepared to advance on Sutanuti. The Nawab was obliged to accord the long delayed permission to the English "to defend themselves." As early as 1693 Sir John Goldborough had selected a site for a factory and had enclosed it with a mud wall. The spot chosen was the highest piece of ground on the bank of the river which then flowed much further east than now, the present Strand Road then being part of the river bed. The actual site is now occupied by the General Post Office, the Customs House and the East India Railway House. Fortifications were hurriedly run up in this place and continued even after the withdrawal of Sova Singh. By January 1697 a bastion and a walled enclosure were completed and ten guns were ordered from Madras.

Commencement
of the Old Fort

Apart from this tangible benefit the Company derived another and infinitely more valuable advantage from Shova Singh's rebellion. The people saw the whole countryside to the west of the Hooghly pillaged by the rebels who were however kept at a safe distance from Calcutta. Charnock's choice was thus more than justified by this incident. Bankers, traders, manufacturers began to come to Calcutta as to a safe haven in those stormy times.

In August 1698 Prince Azim-us-shan, the Governor of Bengal, accepted Rs. 16,000 from the English and granted them the eagerly sought permission to buy from their proprietors the three villages of Govindapur, Sutanuti and Calcutta in full ownership. Though the permission was costly the properties were bought for a nominal price. The three villages were purchased for a sum of Rs. 1,300 and their ownership was transferred to the English by a *bainama* or deed of sale dated the 10th November, 1698 and their former owners "sold and made true and legal conveyance of the villages Dihi Kalkatah and Sutanuti.....and the village Govindapur.....to the English Company with rents and uncultivated lands and ponds and dues from resident artisans together with the lands appertaining thereto bounded by the accustomed notorious and usual boundaries."

Charles Eyre after receiving his knighthood in England returned to the settlement as its first President in 1700. He had instructions to build a fort to be named after William III. When the fort was first constructed in 1697 it had only one bastion and that simply a square tower with thick walls constructed so as "to look like a warehouse for fear of exciting the jealousy of the Mogul." The settlement therefore had to be further fortified.

Two years after the arrival of the first President, in 1702, the President's house was commenced and the Union Jack was hoisted. It took four years to complete the President's house which was described as "the best and the most regular piece of architecture in India." In 1706 the old factory house was pulled down and in its place was erected a single-storied house for the servants of the

Company—the first “Writers’ Buildings.” But it was not till after the death of Aurangzeb in 1707 that the English had any real opportunity of fortifying the settlement. Amidst the general insecurity then prevailing they hastily put up two more bastions on the river side. By this time the other European merchants had built their houses on the eastern side of the fort, the western side being lapped by the Hooghly. The pivot of the settlement was “The Green before the Fort” now called Lal Dighi by Indians and Dalhousie Square by Europeans. It was then a dirty pond full of weeds but was deepened into a much needed reservoir of water in 1709. During the same year the Church of St. Anne was erected partly by State grant and partly by public subscription. In the next year a wharf was commenced before the fort, faced with brick and with a breast-work for cannon.

An embassy was sent from Bengal by the English to Delhi where it arrived on July 8, 1715, with presents to the value of £30,000 but it was not until January next year that the English agents could secure permission to see the Emperor. Even then the mission might have been unsuccessful had not Surgeon Hamilton of the embassy been permitted to attend the Emperor in his illness and restore him to health. At all events the English were granted the long desired *farman* but not till after a tedious delay of two long years. Surgeon Hamilton died on December 4, 1717 shortly after his successful return. His memory was perpetuated in the tombstone of Hamilton within the Charnock mausoleum for the great service rendered by him to the cause of the English in Bengal.

The *farman* secured by Hamilton authorised the English to purchase 38 villages contiguous to the three villages of Govindpur, Sutanuti and Calcutta. Round these as a nucleus grew up a city providing the utmost freedom and security in those troublous times. The land actually occupied was about 2,000 acres and in ten years’ time the shipping amounted to ten thousand tons per annum. “The city increased yearly in wealth, beauty and riches.”

Mission to
Delhi

Further concessions
to the English

The first check to the progress of Calcutta was offered by the terrible storm of September 30, 1737. According to a contemporary account, fifteen inches of rain fell in five hours

Mahratta Ditch which together with the violent earthquake, threw down most of the buildings including the Church of St. Anne. Another calamity befell the city five years later when the Mahrattas invaded Bengal, laying waste the entire countryside to the west of the river Hooghly. The English obtained the permission of the Nawab "to dig an entrenchment round their territory." This work had it been completed would have extended seven miles. In six months three miles of it were finished when the inhabitants finding that the Mahrattas did not approach Calcutta desisted from their works. The original scheme was to plant seven batteries in different parts of the town which was actually done. The Ditch was an after-thought and as stated above merely half finished. The line of the ditch remains in the present Circular Road although all traces of the batteries have vanished. And even temporary settlers in Calcutta still call themselves "Ditchers."

CONFLICT WITH THE NAWAB

Of infinitely greater consequence of Calcutta and indeed to all India was the growing tension between the English and the young Nawab Siraj-ud-Dowla who ascended the throne in 1756. The latter looked with misgiving on the fortifications which were being put up at Calcutta. But his resentment broke into open hostility when the English refused to deliver up to him the son of his Dacca Governor, who had fled with all his father's treasures to Calcutta to evade paying the Government dues to the Nawab. The English applied for help to the factories at Chandernagore and Chinsurah. But as no reinforcements arrived they prepared unaided to defend themselves. They armed all the Europeans, native Portuguese, Armenians and 1500 Hindu matchlockmen. Even the chaplain was enrolled as a "Captain-Lieutenant." A store of grain and other provisions was laid in. Some fortifications were hurriedly run up, as far as the shortness of time permitted.

Troubles with
the Nawab

Calcutta was attacked on June 16, 1756. The Nawab's army reached Chitpore where it was repulsed by the battery of the Bagh-bazar outpost. Emboldened by the enemy's retreat to Dum Dum the English burnt the bazar in front and to the south of the Fort on the next day. But on the 18th the Nawab's army reappeared in great force and drove in the English outposts after severe fighting near the present British Indian Street, then called *Ranimuddi Gully*. The Church and the buildings commanding the Fort were abandoned. Heavy guns were at once mounted on the roofs by the Nawab's army and there was a fusillade of fire on the Fort.

A Council of War was now held, for the position was desperate. It was decided to send the women and children on board the vessels lying off the Fort. The entire night was spent in making preparations for meeting the storming of the Fort which was regarded as inevitable. The governor Drake and others fled declaring that the rout was general. The command now fell on a man called Holwell who with his little garrison continued the defence in a most valiant manner. After two days' fight the army of the Nawab was in possession of the Fort. All the treasures of the Fort

The myth of the Black-Hole Tragedy however had already been removed on board the vessels. It was at this time that the so-called Black Hole Tragedy is said to have occurred. It is said that after the occupation of the Fort the English captives were left free and in comfort at first, but when some soldiers being drunk began to assault the Indians the Nawab's guards put them into the Fort prison which was called the Black Hole, a small cubicle 18 ft. by 14 ft. 10 inches, with two small grated windows. The story runs that 146 prisoners were imprisoned in this room and when on the next morning the door was opened only twenty-three were found to be surviving. It is not however physically possible to cram 146 persons in such a small room. There are besides other reasons for which the story of the Tragedy has been discarded as historically untrue.

Before leaving for Murshidabad the Nawab changed the name of Calcutta to Alinagore and appointed a Governor who had his seat

about three miles to the south of the Fort which was called then as now Alipur. Some of the buildings were demolished, the survivors were set at liberty and only Holwell and three others were taken as prisoners to Murshidabad.

Name of Calcutta
changed by the
Nawab

When the news of the fall of Calcutta on the 20th June reached Madras an avenging army was sent under Clive and Watson. They reached Fulta on December 20, 1756. Clive's troops landed on the east bank and easily captured the fortress at Budge-Budge on the way.

Calcutta retaken
—Treaty with
the Nawab

Admiral Watson sailed up and at his approach the Nawab's garrison speedily evacuated the Fort. On January 2, 1757 the British flag was rehoisted at Fort William. A "consultation" on that day declared the President and Council once more in possession. Clive first removed the neighbouring buildings which commanded the Fort, a moat 30 ft. wide and 12 ft. deep was dug round the Fort and other defences were also raised. On February 9 a treaty was concluded with the Nawab not only restoring the *status quo ante* but with some added privileges.

In the meantime war having broken out between England and France, Clive and Watson captured Chandernagore. An open rupture followed between the English and the Nawab who regarded the French as his allies. Clive wrote a strong letter demanding satisfaction for all past wrongs. The Nawab's reply was an immediate advance of his army. Clive also set his army in motion, making a halt at Katwa till June 22, partly on account of a severe storm and partly to get some authentic news from the Court at Murshidabad before embarking on his desperate enterprise.

From the moment of the retaking of Calcutta there were intriguers at Murshidabad who wished to depose Siraj-ud-Dowla and set up his uncle Mir Jaffer with the aid of the English. Clive decided to take advantage of the intrigue and replace Siraj-ud-Dowla by Mir Jaffer who accordingly executed a treaty with the British. Now as soon as a reassuring letter

Battle of
Plassey

came from Mir Jaffer who solemnly promised to abide by his treachery Clive crossed the Ganges and reached the field of Plassey on June 23, 1757. The plan of intriguers succeeded and the Battle of Plassey was won without much fight.

As soon as Mir Jaffer ascended the throne he gave Calcutta and Zemindary rights in the tract of land from the South of Calcutta up to Culpee to the English *and his deed contained this remarkable sentence: "Know this, ye Zemindars, . . . and others settled in Bengal, . . . that ye are dependents of the Company and that ye must submit to such treatment as they give you, whether good or bad, and this is by express injunction". Lavish compensation was awarded to the Company and its officers, a portion of which was utilised in rebuilding the city, constructing a new Fort, a mint and other public buildings. Presents were heaped on Clive. The huge economic drain on the country known as the 'Plassey drain' which continued from 1757 to 1780 amounted to, according to the latest calculation, not less than £38,000,000. It must be remembered in this connection that the purchasing power of money was then at least five times as high as now.

The victory contributed to the growth of Calcutta. The English were now the real king-makers in Bengal and they were in power without responsibility. Under such conditions Calcutta, which was their headquarters prospered beyond measure. Splendid country houses sprang up in the suburbs, one at Dum Dum for Clive, another at Alipur for Hastings connected with Calcutta by a bridge across Tolley's Nullah and quite a number on the banks of the Hooghly giving the locality its name of

* The relevant clauses of the new treaty were:—

8. "Within the ditch which surrounds the borders of Calcutta are tracts of land belonging to several Zemindars, besides this, I will grant the English Company six hundred yards without the ditch."

9. "All the land lying south of Calcutta as far as Culpeeh be under the Zemindary of the English Company and all the officers of those parts shall be under their jurisdiction. The revenue to be paid by them (the Company) in the same manner with other Zemindars."

Garden Reach. But the city was still an agglomeration of palaces and hovels. A contemporary writer says: "The appearance of the best houses in Calcutta is spoiled by the little straw huts and such sort of encumbrances which are built up by the servants for themselves to sleep in, so that all the English part of the town is a confusion of very superb and very shoddy houses, dead walls, straw huts, warehouses and I know not what."

LATER GROWTH OF THE CITY

During the tenure of office by Hastings both as Governor and Governor-General the city of Calcutta had a systematic growth.

Calcutta
under Hastings As President of the Building Committee of St. John's Church-yard he not only secured a free gift of land from Maharaja Nabokissen

but also gave a liberal state aid and permitted certain unauthorised diversion of state monies. It was under his auspices that the Asiatic Society of Bengal came to be founded in 1784. He was in fact elected the first President, "but with excellent taste and feeling, he declined the honour in favour of Sir William Jones". The seeds of the Royal Botanic Garden at Sibpur were also laid during his regime, both literally and metaphorically. It was in this garden that Colonel Kyd made his earliest experiments with the transplantation of foreign plants into Bengal, which ultimately set up one of Bengal's greatest industries, the tea industry. During the rule of Hastings the administration came to be centralised more and more in Calcutta. He might not have had anything to do with the setting up of the Supreme Court, but it was he who removed the *Khalsa* or the Exchequer from Murshidabad to Calcutta. It was he again who abolished the five Provincial Revenue Councils at Burdwan, Dacca, Dinajpur, Murshidabad and Patna and set up the Committee of Revenue in Calcutta.

The administration of Cornwallis was mainly one of consolidation. He carried out many of the measures initiated by Hastings, who, had not like Cornwallis the power of overriding his Council. Lord Wellesley initiated a long programme of Civic reform in 1803.

The City by this time had considerably grown and it was necessary to make some permanent arrangement for civic administration.

Lord Valentia who visited Calcutta in 1803 has left the following account of the improvements effected by Wellesley. "The town of Calcutta is at present well worthy of being Calcutta in 1803. the seat of our Indian Government, both from its size and from the magnificent buildings which decorate the part of it inhabited by Europeans. The citadel of Fort William is a very fine work, but greatly too large for defence. The Esplanade leaves a grand opening, on the edge of which is placed the new Government House, erected by Lord Wellesley, a noble structure, although not without faults in the architecture and upon the whole not unworthy of its destination. On a line with this edifice is a range of excellent houses, chun-amed and ornamented with verandahs. Chowringhee, an entire village of palaces, runs for a considerable length at right angles with it and altogether forms the finest view beheld in any city." The Indian quarter in those days however was less imposing and about it Lord Valentia says: "The Black Town (i.e., the Indian quarter) is as complete a contrast to this as can be well conceived. Its streets are narrow and dirty, the houses of two stories, occasionally brick and generally mud, and thatched, perfectly resembling the cabins of the poorest class in Ireland."

From this time on the progress of Calcutta is continuous. In 1813 the new charter of the Company abolished its monopoly and permitted other people to trade in India side by side with the Company on equal terms. The Calcutta since 1803 result was increased trade and prosperity to Calcutta. But this was completely eclipsed during the crisis of 1830-1834 when five of the great Agency Houses failed. Another crash came in 1847 when the Union Bank failed with huge commitments in the most disgraceful circumstances imaginable. A contemporary English writer was constrained to make the following remark: "The commercial morality of Calcutta is a bye-word in every Chamber of Commerce in Europe. There is almost a total bankruptcy of character."

The Town Hall, begun in 1805, was completed in 1813. During this latter year was also created the Bishopric of Calcutta although the first Bishop, Middleton, was not enthroned in St. John's till a year later. The foundation stone of St. Paul's was laid in 1839 and the Cathedral was consecrated in 1847. In 1831 was opened the new Mint, or the Silver Mint, the Copper Mint not being started till 1865. At about this time the Calcutta Trades Association, the oldest body in Calcutta came to be founded, the incorporation under the Companies Act taking place nearly half a century later in 1882. The Calcutta Chamber of Commerce, the progenitor of the Bengal Chamber of Commerce, was constituted in 1834, but not on the present site which is associated with the memory of Clive and Francis. The two Misses Eden, the talented sisters of Lord Auckland, started the famous Gardens bearing their name at about this time.

During the Viceroyalty of Lord Curzon a fresh impetus was given to the growth of the City. At the instance of Lord Curzon the Victoria Memorial Hall was started and it is without doubt the most magnificent building erected in India in modern times.

The Port Commissioners were instituted in 1870 and the modern improvements of the Port have been mostly effected by this body. They control the docks and Jetties and many landing stages or ghats. They also run an efficient Ferry Service to many important places in and out of Calcutta and Howrah. The Ferry Service carries over million passengers annually.

Other bodies both official and non-official have contributed to the development of the city in many ways in recent years. The

Development by
The Improvement
Trust

Calcutta Improvement Trust was formed in January, 1912. The idea was to make arrangements for undertaking, on a large and long-drawn-out scale the improvement of the city by opening up congested areas, laying out or improving roads, providing open spaces as "Lungs" of the City, creating good and cheap housing for the poor, carrying Calcutta's limits farther afield by road building etc.

The Trust has done very good work since its inauguration. It is remarkable how they have "changed the face" of Calcutta by laying out broad streets like the Central Avenue (now called the Chittaranjan Avenue), New Park Street, New Theatre Road, Russa Road Extension, Southern Avenue, the Rashbehari Avenue etc. They have also given Calcutta many new Parks and demolished many a hotbed of congestion, dirt and disease. In the southern parts of the city near Dhakuria an extensive lake has been excavated. It is now the greatest place of attraction for the citizens of Calcutta.

So far roads with a total mileage of 54.85 miles with an area of 17,19,058 square yards has been handed over to the Corporation of Calcutta by the Trust. The area of open spaces laid out as Parks and recreation ground is about 320 acres. The Improvement Trust within a short span of time has changed the appearance of the City to a great deal; it has not only beautified the city in several respects but has helped the extension of the city southwards and northwards. It has besides by providing the city with some big parks and the lake, helped the growth of new sporting, rowing and swimming clubs, both European and Indian.

A few other public bodies like the Hindusthan Co-operative Insurance Society Ltd., and the Ballygunge Bank have contributed to the development of the city to a limited extent. They have in recent years developed lands in the southern section of the city in Ballygunge area and thus helped the growth of large residential areas.

Development by
other bodies.

Thus the transfer of the capital of India to Delhi has not in any way impaired the importance of Calcutta as a centre of great activities. Her greatness is still present and indeed omnipresent. She has attained her present position gradually through a continuous struggle of over two centuries. She can now justly point with pride to the solid contributions which her sons, whether by birth or adoption, have made to the art, literature, science, politics, commerce and industry of the entire country and to their leadership of thought.

APPENDIX

The 38 villages which the English Company were permitted by the Mughal Emperor to buy from the Zemindars in 1717 :—

I. On the Howrah side of the river :

1. Salica (Salkeah).
2. Harirah (Howrah).
3. Cassundeah (Kasundiah).
4. Ramkissnopoore (Ramkristopur).
5. Batter (Betor, modern Bantra).

II. On the Calcutta side of the river :

6. Dackney Packparra (Dakshin Paikpara).
7. Belgeshia (Belgachhia).
8. Dackney Dand (Daksindaree).
9. Hogulchundey (Hogulkuria).
10. Ultadang (Ultadinghi).
11. Similiah (Simla).
12. Macond (Makonda).
13. Camorparrah (Kamarpara).
14. Cancergasioiah (Kankurgachhi).
15. Bagmarrey (Bagmari).
16. Arcooly (Arkuli).
17. Misrapoor (Mirzapur).
18. Sealdah (Sealdah).
19. Cooliah (Kuliah).
20. Tangarah (Tengra).
21. Sundah (Surah).
22. Bad Sundah (Bahir Surah).
23. Shekparra (Sheikhpara).

24. Doland (Dalanda).
 25. Bergey (Birji).
 26. Tiltola (Tiljula).
 27. Tpiaah (Topsia).
 28. Sapgassey (Sapgachhi).
 29. Chobogah (Chowbagah).
 30. Cherangy (Chowringhee).
 31. Colimba (Colinga).
 32. Goborah (Gobra).
 33. Badokney Dand (Bahir Dakshin daree).
 34. Sicampur (Serampore).
 35. Jola Colimba (Jala Colinga).
 36. Gandalparah (Gondolpara).
 37. Hintaley (Entally).
 38. Chittpoor (Chitpur).
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CHAPTER III

THE HISTORY OF MUNICIPAL ADMINISTRATION

THE EARLY ADMINISTRATION

We have seen that Calcutta with its neighbouring villages of Sutanuti and Govindpur did not take long to grow into a populous town. The territory over which the Company assumed control at first was about 1692 acres of land comprising roughly the land between the river and the salt lakes, from Govindpur to Sutanuti. Even in 1752 some lands within the Company's bounds like districts of Simla, Mallanga, Mirzapore and Hogulkuria were still held by private proprietors. For the purposes of administration, the Company split up its territory into four divisions, of which the largest was the central one called Dihi Calcutta. The old Fort and the Company's offices were situated in this part. It centred round the great tank (Dalhousie Square). The other divisions were Sutanuti in the north, Govindpur in the south and Barrabazar, all of which had grown into populous settlements. In 1742 the township of Calcutta was limited and defined by the new ditch called the Mah-ratta Ditch. In the treaty of 1757 the Company was given possession not only of all lands within the ditch but also of six hundred yards without. With the acquisition of zemindari right within this limit the town expanded and included the suburban area which lay outside it. Thus a number of *mouzas*, Hogulkuria, Simla, Tun-tuneah, Arcooly, Mallanga, Dinabhanga, Collinga, Taltola, Birjee, and Ooltadinga became part of the town. Since that time the boundaries of the town extended further through the annexation of certain portions of land from the district of 24 Perganas adjoining Calcutta.

The boundaries of Calcutta in 1779 have been described as follows: "Kidderpore is a village about two miles from the Court

Boundaries of
Calcutta in 1779

House, lying close to a small river commonly called by the English Kidderpore Nullah. This river is the boundary southward of the town of Calcutta, of which the river, commonly called the Hooghly river, is the boundary north-westward, and the Marhatta Ditch which exists in many parts and the line where it once was in other places, are the boundaries north-eastward, eastward and south-eastward, to the place where that ditch or line, where it existed, meets the Kidderpore Nullah and from that place the rivulet is the boundary. This rivulet was a little to the west of the new Fort, which is considered as within the town of Calcutta." Till 1840 these boundaries did not possibly undergo any change but since then extensive changes have been made. The present boundaries of Calcutta can be delineated as follows:

The present area and population	North and East: Circular Canal, Pagladanga Road, South Tangra and Topsia Road, E. B. Railway line. South: E. B. Railway line, Russa Road, Tollygunge, Circular Road, Goragatchia Road, up to Nimak-mehal Ghat, West: the Hooghly river.
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The Municipal area of Calcutta is at present about 31½ square miles but including the Fort William, the Maidan, the Port and the Canals the whole area would be something like 45 square miles. The population of the municipal area according to the Census of 1931 is 11,58,044. The entire population of Calcutta including that of the Fort William and the Port is about 11,96,734 and including that of the South Suburban area, Tollygunge and Howrah it is nearly 17,33,927. The total population of the city in 1921 was only 9,07,851 and in 1872 when the first Census was taken it was 6,33,009. These figures clearly show with what great rapidity the City has grown.

Along with the growth of the city the Government had to make arrangement for the municipal administration. At first the

administration was entrusted to one of the civil servants of the Company who was called the "Zemindar" and later the "Collector" of Calcutta. Under a Royal Charter issued in 1727 a Corporation consisting of a Mayor and nine aldermen, with a Mayor's Court, was established of which Holwell, the famous 'Zemindar' or Collector of Calcutta, afterwards became the president. The Mayor's Court was given civil, criminal and ecclesiastical jurisdiction over British inhabitants and dispensed a kind of rough and ready justice, according to broad principles of equity. A tax was levied on the inhabitants of Calcutta for the construction of a town hall or court house to accommodate the mayor and his court. The building was erected in 1729 on the site now occupied by St. Andrew's Church.

**The beginning
of Municipal
administration**

Meanwhile the Corporation did not do much to improve its administration. A new Royal Charter was granted in 1753. The Mayor's Court was re-established and an ineffectual attempt was made to organise a municipal fund by the "levy of a house tax of two or three lakhs of rupees, to defray the expense of cleansing and ornamenting the place internally." Revenue accruing from other sources like ground rent, toll etc., was partly used for maintaining 'an undisciplined battalion of thanadars and peons, constituting the only established guard or night watch of the city'.

**Royal charter
of 1753**

In spite of the orders of the authorities to the 'Zemindar' or Collector 'to make drains sweet and wholesome' and to cut down the jungle in and about the town little improvement in the sanitary conditions were effected. The ditch to the east of the old Fort was not filled up till 1766 nor the Mahratta Ditch till 1780, though both had been the dumping grounds for all the filth and garbage of the city. In 1790 the public drains were still the natural receptacles for all refuses and filth and carcasses were left to rot and putrefy in the streets. Thus the city was then in fact 'little better than an

**Sanitary condition
of Calcutta**

undrained swamp, surrounded by malarious jungle and pervaded by a pestilential miasma."

The need for drastic measures was soon felt by the authorities. In 1794 under the statute Geo. III the collector was relieved of his municipal duties and the Governor-General took powers to appoint Justices of the Peace for the municipal administration of the town, with authority to make regular assessments and to levy rates. The Justices set to work at once to improve the town. The Circular Road began to be metalled in 1799. In 1801 tenders were invited for the supply of 85 pairs of bullocks for conservancy purposes. But the work of improvement was of such a magnitude that it was already outside the resources of the Justices.

Drastic changes
in Municipal
administration
in 1794

Lottery Committee
1817

In 1803 Lord Wellesley inaugurated a long series of Civic reforms which were executed during the next thirty years first by Improvement Committee and subsequently by the Lottery Committee constituted in 1817. The Improvement Committee bore a similar relation to the Justices as the Improvement Trust bears to the Corporation at present. This Committee was superseded by the Lottery Commissioners in 1814 and eventually in 1817 by the Lottery Committee. In the order of the Government "it was laid down that the Lottery Fund should be considered applicable to the expense of excavating new tanks and filling up old ones, of opening new streets or roads, of constructing aqueducts, bridges, ghauts, and other similar works calculated to improve the health, convenience, and comfort of the inhabitants of the city and suburbs, but not to the keeping in repair streets, roads, drains or other works alluded to when finished and that generally speaking, no expense should be charged to the fund which could properly be included in the assessment department."

The corporate control of the Justices gradually gave way to the concentration of authority in the hands of the Chief Magistrate. There were at one time seven Justices or Magistrates, but their

number was subsequently reduced to five, including the Chief Magistrate. The Chief Magistrate derived his authority from the Government and not from the people and local taxation was still almost an untried principle. In spite of the great works which the proceeds of the Lotteries had served to finance, Calcutta after forty years of the Justices was still in an unsatisfactory condition.

In 1833, therefore, the first proposal for an experiment in representative government was made. It was suggested that "Municipal Committees" should be elected by rate-payers of a certain qualification in each of the four divisions into which the town was then divided. The Committees were to be of an advisory character and may be regarded as an adumbration of the modern District Committees. They were to consist of seven or nine members, the Chief Magistrate and the Divisional Magistrate being members *ex officio*. The scheme was not however well received.

In 1836 Lord Auckland appointed the *Fever Hospital and Municipal Improvements Committee*. The final instalment of its report was not issued until 1847 and it succeeded in riveting the attention of all men on the importance of the standing municipal problems. The Committee pointed out that the prevalence of fever in Calcutta was due to the defective drainage system. It recommended the establishment of a great central hospital and additional dispensaries. Besides it devoted some attention to town-planning and advocated the construction of more thoroughfares, pressed for the excavation of large tanks or reservoirs to supplement the water supply. The defects of conservancy in congested parts of the town were laid bare and the details of the administration were scrutinised. It further recommended the establishment of police both for the town and the river and great economies in regard to Magistracy, the excise, collection and Assessment departments. It analysed the question of finance and made recommendations in regard to taxation.

The immediate outcome of the Committee's labours was

Act XXIV of 1840 which empowered the Government, on the application of two-thirds of the rate-payers in any of the divisions of the town to entrust to them the assessment, collection and management of the rates of their division. Under Act XVI of 1847 a further attempt at local self-government was made. The Act transferred the conservancy functions of the Justices to a Board of Seven Commissioners of whom three were to be appointed by Government and one elected by the rate-payers for each division of the town. A number of Acts passed during the successive years vested larger powers in the Commissioners.

It was however believed that the most suitable form of government for Calcutta was one which combined popular representation with the concentration of executive power in the hands of a highly paid officer. A new Bill was accordingly framed which became the Act of 1863. According to it the general control of municipal expenditure was vested in a large body of councillors, while the execution in detail of all sanctioned works was entrusted to a well paid whole-time officer. Under the new Act the Corporation came to consist of all Justices of Peace for Bengal, Bihar and Orissa who might be resident in Calcutta along with the Justices of Peace for the town. The appointment of their Chairman rested with the Government.

The constitution with a large number of Justices and a Chairman who could work if he was able to exercise a strong personal influence over these Justices was a clumsy and unworkable one. Therefore another Act was passed in 1876 (Act IV) which introduced the elective principle. According to it two-thirds of the Commissioners who numbered 72 exclusive of the Chairman and the Vice-Chairman had to be elected by the rate-payers and the remainder being appointed by the local government. The electoral divisions were to correspond with the thanas or police divisions which were termed *wards*. The appointment of the

Chairman, Vice-Chairman and other officers as well as of Committees was governed by provisions almost identical with those contained in Act VI of 1863.

It was soon discovered that a large deliberative body could not advantageously deal with details of business which it was required to superintend. In 1877 a Committee which had no statutory sanction was appointed under the name of the Town Council in which were merged the Finance, Roads, Conservancy and Water Supply Committees. As this innovation proved a success it was soon given a legal status.

Having regard to the recommendations made by a Commission appointed in 1884, the Government passed a new Bill (Act of 1888) which introduced certain important changes in the previous constitution. In the first place it increased the number of Commissioners to 75 of which 15 had to be appointed by the local Government, 50 to be elected by the rate-payers (2 by each of the 25 wards into which the enlarged municipality was divided), 4 to be selected by the Bengal Chamber of Commerce, 4 by the Trades Association and 2 by the Port Commissioners. In the second place the Town Council was reconstituted as the General Committee consisting of 18 members of whom 12 were to be chosen by the elected Commissioners and 6 by the nominated ones. It was made the 'Budget and Finance Committee' of the Corporation with power to deal with any other business that might be referred to it. The Chairman and the Vice-Chairman were to be ex-officio members of the Committee.

An amending Act however came into force in 1899 (Act III) in spite of the great opposition of the influential Commissioners of the Corporation who even declined to take part in the administration of the new Act. This Act reduced the number of Commissioners to 50 of whom 25 only were to be elected at ward elections and the remainder being appointed partly by the Government and partly by the Bengal Chamber of Commerce, the Calcutta Trades

Association and the Port Commissioners. The Act provides for three co-ordinate municipal authorities, the Corporation, the General Committee and the Chairman. During the life of this Act there was considerable municipal progress and expansion. Its provisions "controlled the execution of great and notable works and permitted the assumption of new responsibilities involved in the modern conception of municipal government."

THE PRESENT CORPORATION

The present Corporation came to be constituted under the Calcutta Municipal Act of 1923. The previous enactments were repealed by it and it provided for greater popular representation. Under this Act the scope of municipal administration extended further with the inclusion of "area added to Calcutta" namely: (i) the Maniktala Municipality, (ii) the Cossipur-Chitpur Municipality, (iii) the Garden Reach Municipality (iv) the new Dock extension area vested in the Commissioners of the Port of Calcutta and (v) that portion of the Tollygunge Municipality which comprises the Ballygunge Pumping Station and the High Level Outfall Sewer.

The Corporation came to consist of seventy-five elected Councillors, ten Councillors appointed by the Local Government and five Alderman elected by the Councillors. For the purposes of the election of the Councillors Calcutta with the added area was divided into 32 General Constituencies which are territorial and which have to elect 63 Councillors out of which 15 seats are reserved for Muhammadans. Besides these General Constituencies there are three Special Constituencies namely the Bengal Chamber of Commerce, Calcutta Trades Association and the Calcutta Port Commissioners which are to be represented by six, four and two Councillors respectively. The ten Councillors are appointed by the Local Government in order "to secure the association in the municipal administration of persons

specially fitted in the opinion of the Local Government for appointment as Councillors" and "to secure the representation of minorities including the backward and labouring classes." The five Aldermen are elected at a meeting of the elected and appointed Councillors held shortly after the general election. At the first meeting in each year they elect two of their number to be Mayor and Deputy Mayor. For the purposes of the election all persons who own or occupy or reside in any premises or exercise any profession, trade or calling within the general constituencies are qualified as electors.

It is the Corporation which appoint its officers—the Chief Executive Officer, Chief Engineer, Chief Accountant, Health Officer and Secretary. The Chief Executive Officer is the principal executive officer of the Corporation and all other officers and servants of the Corporation are subordinate to him. The Corporation exercises a general control over the functions of all the officers appointed by it.

The Corporation each year appoint a number of the Standing Committees and District Committees to which it refers for enquiry and report and delegate specific functions. One of these Standing Committees is the Primary Education Standing Committee which advises the Corporation in regard to all matters relating to Primary education in Calcutta.

The Corporation is entitled to a consolidated rate on lands and houses within the boundaries of the area administered by it and also to taxes on carriages, dogs, professions, trades and callings, petroleum, carts etc. The Corporation has also the power to raise loans by the issue of debentures or otherwise for the construction of works, for the acquisition of lands or for any other purposes provided for in the Act.

In the matters of raising loans or for carrying out projects

which may entail an expenditure of two and a half lakhs of rupees or more the previous sanction of the Local Government is necessary. The Government also reserves such other rights which may be exercised only in cases of emergency. Generally speaking the Calcutta Corporation has become, since 1923, a completely autonomous body constituted of the representatives of the ratepayers of the City.

The control of
the Local Govt.

In 1933 the Government however thought it fit to introduce some important amendments to the Act of 1923. According to these amendments a new constituency with portions of Ward 22 (Bhowanipur) and Kalighat has been created and this constituency has been called Ward 22-A. The number of Councillors was raised to 81 from 75 and the six additional seats were allotted to some of the constituencies of which the representation was considered to be insufficient.

Another change which came into effect on the 16th November 1933 was introduced by passing the Calcutta Municipal Amendment Act XI of 1933 whereby the Corporation is prohibited from appointing, except with the previous sanction of the Government a person as a municipal officer or servant if he has been convicted of an offence against the State or has been sentenced to imprisonment for a term of three months or more, or from making a grant knowingly to any institution which has after the commencement of the Amendment Act taken into employment any person or to any person who has been similarly convicted or sentenced. The Act further provides for the dismissal of a municipal officer or servant who after the commencement of the Act is convicted of an offence against the State.

The Amending
Act of 1933

The Government has vested the auditors with very wide powers viz., to disallow any item of account contrary to law and surcharge the same on the person making or authorising the making of illegal payment and also to charge against any person accounting any deficiency or loss incurred by his negligence or misconduct. It has been

provided that such of the Councillors or Aldermen as will vote for a motion or resolution authorising a payment held by the auditors to be illegal shall be held jointly or severally responsible for the same.

The passing of these amendments of the Municipal Act of 1923 was not quite smooth and a large number of sitting Councillors greatly resented this assumption of wide powers by the Government.

The revenue of the Corporation in 1900-1901 was only Rs. 54,34,000 but during the last thirty-four years it has gradually increased and the revenue in 1935-1936 was Rs. 2,37,79,993 and the expenditure in the same year ran up to Rs. 2,49,64,794.

The latest figure for the number of premises within the city is about 69,887 and the Corporation has to maintain within its jurisdiction 381.53 miles of Road of which about 158.29 miles are covered with asphaltum. Though on account of the rapid growth of the City in certain directions the Corporation has not yet been able to cope successfully with the problem of drainage it has got to maintain at present about 80.01 miles of *brick sewer*, 262.81 miles of *pipe sewer* and about 222.64 miles of *surface drains*. The extent of surface drains in the recently acquired areas is 118.60 miles. The most urgent problem which is at present before the Corporation is the question of the outfall of the City's rain and refuse water which fall into a river called Vidyadhari a few miles to the east of the City through a system of canals. As the river is gradually silting up the Corporation has got to arrange for the outfall either by dredging the river or otherwise.

For the conservancy and other purposes* the Corporation has to run a very well-equipped department. This department has to maintain about 148 motor vehicles, 2304 carts and 18.65 miles of railway.

* Street watering and filtered water supply in some quarters, stores repair etc.

The Lighting Department is under the control of a Superintendent of Lighting appointed by the Corporation. The street lighting of Calcutta is under the direct supervision of this department and for this there is arrangement both for gas and *oil lamps* as well as *electric lamps*. The number of gas and oil lamps used for the street lighting is about 21,051 and that of the electric lamps is about 4,136. The gas is supplied by the Oriental Gas Company Ltd. and electricity by the Calcutta Electric Supply Corporation Ltd.

The water supply is under the supervision of the Executive Engineer, Water Works. The filtered water is supplied from two stations one at Pulta and the other at Tallah. The reservoir Tank at Tallah is the second largest of its kind in the world. It is a steel tank 16 ft. deep, and has an area of 321 feet square supported on steel columns, the height from the top of the Tank to the ground level being 110 feet. It has a capacity of 9 million gallons. The unfiltered water is supplied from two pumping stations on the Hooghly, at Mullick Ghat and Watgunge. For the supply of filtered water, high pressure is maintained in the morning from 5 A.M. to 10 A.M. and 3-30 P.M. to 6-30 P.M. in the evening. For the supply of unfiltered water high pressure is maintained throughout except on Tuesdays when high pressure is maintained only from 3 P.M. to 10 A.M. The average daily supply of filtered water to the City of Calcutta is 66,533,000 gallons and that of unfiltered water is 57,083,000 gallons. Besides this the Corporation also supplies water to the adjacent Municipal areas.

Under the Act of 1923 the Corporation established a large number of Free Primary Schools within its municipal areas. The department is placed under the control of an Education Officer. In 1923 there were only 19 schools but this number has gradually and systematically grown to 230. Besides these there are some Night Schools which have been started for the Carters and Sweepers. On the 31st March 1936, the total number of children in the Corpora-

tion Free Primary Schools was 33,038 as compared to 32,856 in the previous year. The total number of teachers was 1,086 (671 men and 415 women).

The Corporation has also established several Free Primary Model Schools for teachers started by the Corporation. There is also a Training School run by the Corporation for the training of its teachers. The School is situated at 33, Wellington Street and 1, Wellington Square and is under the control of a Principal. The School provides for the training of the teachers appointed in the Free Primary Schools.

The total expenditure for the Free Primary Schools and grants-in-aid to Primary and Technical Institutions and Free Libraries during the year 1935-36 was Rs. 16,45,000 as compared to Rs. 11,24,415 in the previous year. In regard to free primary Education within the city the next step which the Corporation contemplates to take is to find out the ways and means for making it compulsory. For this purpose free primary education for children

**Compulsory
Free Primary
Education in
Ward IX**

between the ages of 6 and 10 was started in Ward IX from November 1934. Considerable progress was made in the matter in 1935-36. A census of the children between ages 6 and 10 of this Ward has been taken. The total number of boys in the Ward was found to be 3,393 on 31st March 1936. Of these 1,323 are now studying in the Corporation Primary Schools and 1276 in aided Schools. Notices are also being issued to the guardians of other boys according to the provisions of the Bengal Primary Education Act of 1919.

For the purpose of educating the public the Corporation has established a *Commercial Museum* and a Publicity Department both of which are situated in the College Street Market premises. The Museum has been started with the object of collecting various samples and specimens of Industrial and Agricultural Products of India including the Native States, Burma

**Commercial
Museum and
Publicity**

and Ceylon. These objects are placed in show-rooms for affording facilities for making them better known to the consumers. The function of the *Publicity Department* is to awaken a "sanitary conscience" among the citizens of Calcutta and to carry out systematic preventive propaganda by means of illustrated leaflets, booklets, posters etc. It further organises peripatetic Health Exhibitions and co-operate with the Ward Health Association.

There are about 28 Health Associations in different parts of Calcutta. These Associations receive a grant-in-aid from the Corporation and collect money locally from membership fees. Their main object is to work amongst the poorer classes, and bring them medical relief. They besides organise Health Exhibitions and illustrated lectures for educating the people in matters of sanitation.

The Corporation has also a Publication department and has also an official organ viz. *The Calcutta Municipal Gazette* which was founded in 1924 by the late Mr. C. R. Das, the first Mayor of Calcutta, with the object of promoting a better understanding of the work of the Corporation and moulding public opinion for a neater, cleaner, healthier and more beautiful City. The Gazette is a weekly history of the City and is both a newspaper and magazine, a newspaper to record all important municipal happenings and a magazine to publish interesting reading matter of civic and municipal problems. All Corporation notices and tenders are published in the Gazette.

The Corporation maintains a Workshop at 3 Convent Road, Entally, which has different departments like Foundry, Machine-shop, Boiler-making and Blacksmithshop, Loco and Wagon Repairshop etc. This Workshop not only does all the repair works necessary for the Corporation but also manufactures water pipes, hydrants, lamp posts, conservancy carts, fans and various other things for the use of the Corporation.

There is besides a Health Department of the Corporation under the general supervision of an Health Officer with District Health Officers and Inspectors to assist him in the execution of his duties. His main function is to look after the sanitation of the city and make such recommendations as may help the improvement of the sanitary conditions of different parts of the municipal area.

**The Health
Department**

It is very difficult to judge the health of Calcutta merely from vital statistics because a large part of its population is semi-floating.

**The Health
of Calcutta**

According to the Census of 1931 the number of female deaths in Calcutta between 1921 and 1931 is 792 for every 1,000 male deaths. When the discrepancy in the sexes is taken into account the figures indicate a relatively very high incidence of mortality amongst females in Calcutta. The recorded male death rate on the average was 23.5 per mille which is comparable with 24.9 per mille which is the rate for all Bengal. The recorded female death rate was on the average 38.6 compared with 24.3 per mille in the whole of Bengal. This shows that the female death rate is more than 64 per cent higher than the male death rate and lately this discrepancy has increased even up to 77 per cent.

The largest number of cases of deaths in Calcutta are due to tuberculosis, malaria and digestive diseases. The digestive diseases and tuberculosis prove most fatal. "On the average nearly six thousand males and over 4 thousand females annually die from respiratory diseases. Fevers are recorded as the cause of death annually of nearly 2,500 males and over 2,000 females. Dysentery and diarrhoea are the next most fertile sources of mortality. The deaths from respiratory diseases in Calcutta account for almost thirteen times the proportion of deaths due to these causes in all Bengal, but the proportion of deaths from fevers which is higher than from any other cause in the whole of Bengal is only one-fifth or one-sixth as large in Calcutta."

Therefore considering the fact that Calcutta is in the heart of malaria-stricken Bengal the rate of deaths in Calcutta from fever

speaks very much in favour of the healthiness of the City. This is largely due to the fact that Calcutta's Water Supply and Conservancy are fairly good. The city also being the home of a large educated community, the average standard of living is better than what it is elsewhere. Moreover in density of population, Calcutta is somewhat better off than many other cities.

In order to check the progress of the malarial fever in different wards of the city the Corporation has recently opened a *Mosquito Control Department*. Its officers regularly visit the localities affected by malaria and use disinfectants for destroying the mosquitoes and their larvae particularly in tanks, open drains, and marshy lands and other places where the mosquitoes generally breed.

It has been on the programme of work before the Improvement Trust to open out Squares and Parks as well as spacious roads particularly in congested areas of the City and it is hoped that these measures will greatly reduce the number of annual deaths from respiratory diseases.

It cannot be, however, denied that there is plenty to do in Calcutta regarding the supply of pure food, good dwellings, conservancy etc. But neither the local Government nor the present Corporation is wholly indifferent to these matters of health.

This is but a short sketch of the manifold activities of the present Corporation. Calcutta in the time of Job Charnock had only a population of 12,000 souls but during the last two centuries and a quarter it has grown into an extensive City and necessarily the administrative machinery of the Corporation has become a vast and complicated one. There is no doubt that civic sense of the rate-payers has considerably developed and the Corporation which is mainly constituted of their representatives is now a Corporation which is largely conscious of its responsibilities towards its electors. Thus Local Self-government in this particular case has proved a complete success.

APPENDIX

I

POPULATION OF CALCUTTA

1710	...	...	...	12,000
1752	Holwell's Estimate	...	...	409,000
1782	Mackintosh's ,,	...	...	500,000
1789	Grand Pre's ,,	...	...	600,000
1800	Police Comsr's ,,	...	...	500,000
1802	Chief Mgte's ,,	...	...	600,000
1814	Sir E. Hyde's ,,	...	...	700,000
1815	East India Gazetteer	...	...	500,000
1821	Assessor's estimate	...	...	230,502
1831	Captain Steel's ,,	...	...	411,000
1837	Captain Birch's ,,	...	...	230,000
1840	Simm's	...	...	361,000
1850	Chief Mgte's ,,	...	...	413,000
1872	Census	...	...	633,009
1881	Census	...	...	612,307
1891	Census	...	...	682,303
1901	Census	...	...	847,796
1911	Census	...	...	896,067
1921	Census	...	...	907,851
1931	Census	...	...	1,196,734

II

BIRTHS AND DEATHS OF CALCUTTA SINCE 1901

Year	Total birth	Ratio per mille per year.	Total death	Ratio per mille per year.
1900	10,773	12.7	36,709	43.2
1901	9,129	10.7	32,456	38.2
1902	12,122	14.2	31,410	37.0
1903	13,182	15.5	29,765	35.1
1904	15,250	17.9	32,181	32.2
1905	15,637	18.4	32,181	37.9
1906	15,083	17.7	30,293	35.7
1907	16,224	19.1	81,942	37.6
1908	17,043	20.1	27,639	32.6
1909	19,423	22.9	28,946	34.1
1910	17,106	20.1	23,728	27.9
1911	19,515	21.7	24,396	27.2
1912	19,426	21.6	25,209	23.1
1913	18,386	20.5	26,188	29.2
1914	17,386	19.4	25,431	28.3
1915	16,578	18.5	25,890	28.5
1916	18,737	20.9	22,098	24.7
1917	18,807	20.9	21,360	23.8
1918	18,166	20.3	31,371	35.0
1919	16,565	18.5	37,839	42.2
1920	15,375	17.1	35,276	39.3
1921	17,308	19.0	30,395	33.4
1922	17,349	19.1	26,381	29.1
1923	18,212	20.1	25,834	28.5
1924	19,666	18.3	31,881	29.6
1925	20,346	18.9	35,195	32.7
1926	18,199	16.9	37,376	34.7
1927	16,740	15.5	36,820	34.1
1928	22,001	20.4	34,119	31.6
1929	22,789	21.1	32,981	30.6
1930	23,614	22.9	31,135	28.9
1931	26,477	22.1	30,562	25.4
1932	24,925	20.7	30,011	25.0
1933	26,045	21.8	35,175	29.4
1934	25,717	21.5	34,356	28.7
1935	25,358	21.2	34,093	28.3

III

POPULATION OF THE PRINCIPAL CITIES OF INDIA AND BIRTHS AND DEATHS PER MILLE

Name of the city	Population		1935	
			Birth	Death
Calcutta —	11,96,734	...	21.2	28.5
Bombay —	11,61,383	...	29.6	25.2
Madras —	6,47,230	...	47.9	38.6
Lucknow —	2,51,097	...	51.08	36.02
Delhi —	3,47,539	...	48.66	32.85
Lahore —	4,00,075	...	36.61	22.29
Agra —	2,05,487	...	63.08	42.41
Allahabad —	1,73,895	...	51.5	30.5

CHAPTER IV

THE SOCIAL LIFE IN CALCUTTA

RELIGION, CASTE, LITERACY AND OCCUPATION

Calcutta is the meeting place of many nations and many religions. Its social life therefore is bound to be varied and if we are to describe the various aspects of this social life we have to take into account the variety of races living in this city, their religions, the customs peculiar to each of them and their traditional institutions which they have tried to maintain and develop since the beginning of their settlement in Calcutta.

Amongst the religions professed in the city Hinduism and Mahomedanism claim the largest number of the entire population.

Religion	Hinduism is represented by different shades of religious faiths like Shakta, Vaishnava, Brahma and Arya-samajist. Amongst the followers of Islam the number of the Sunnis is the largest and the Shiahhs count only about 300 in number. Christianity comes third as far as the numerical strength of its followers in the City, its suburbs and Howrah is concerned. There are besides the followers of Zoroastrianism, Jainism, Buddhism, Sikhism, Confucianism and Tribal beliefs. Of the Jainas there are various sects in Calcutta. The followers of Zoroastrianism are the Parsees and those of Confucianism are the Chinese. Amongst the Christians, the native Christians are more numerous than others.
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Social groups	In the City itself the most numerous social groups are represented by the Brahmins, the Kayasthas and the Mahishyas. There are larger numbers of Brahmins living in the suburbs in 24-Parganas than Kayasthas with the result that although the Brahmins are more numerous than any
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other caste people in Calcutta with its suburbs the Kayasthas take their place in Calcutta proper. After the Mahishyas the Subarnabaniks now command the largest number in Calcutta proper as well as in the City with its suburbs. The Brahmins, the Kayasthas and the Baidyas together form about 40 per cent. of the total number of Hindus in the City. The Subarnabaniks, Shahas and Gandhabaniks who represent the indigenous trading classes contribute more than 10,000 each to the population of Calcutta proper. Besides these the functional classes like Goalas, Chamars, Doms, Kalus, Muchis, Napits and Dhobis all contribute as many as 10,000 to the total population in the city proper. Amongst the cultivating classes the Mahishyas are the most numerous and the number of the Namasudras and Pods, though small, is not insignificant. The primitive people from Bihar and Orissa are very few in numbers. They are less than 4,000 including all their sections namely Agaria, Bahelia, Bhuiya, Bhumij, Ghatwal, Kewat, Kharia, Munda, Oraon and Santal.

In the population of Calcutta proper the total number of literate persons recorded by the Census of 1931 is 473,589 of which 111,031 are females. The corresponding numbers in the suburbs of Calcutta are 14,062 of which 2,768 are females, and in Howrah city 72,569 of which 17,556 are females. Judging by religion and taking both sexes together the order of literacy in Calcutta with its suburbs in the 24-Parganas is as follows: Christians—77.7 per cent., Zoroastrians—71.3 per cent., Jews—69.3 per cent., Jains—58.2 per cent., Buddhists—57.4 per cent., Sikhs—48.4 per cent., Hindus—44.5 per cent., Confucians—36.8 per cent., Muslims—31.0 per cent. and those professing tribal religions—8.5 per cent.

The following figures fairly represent the distribution of literate persons per 10,000:

Calcutta with Suburbs—

Males: literate—4,302.

literate in English—2,191,

Females: literate—1,213

literate in English—832

Calcutta—

Males : literate—4,388.

literate in English—2,295.

Females : literate—2,786.

literate in English—925.

Calcutta is primarily an industrial and commercial city and therefore the greater portion of its population lives on industry, trade and commerce. Of the entire population of Calcutta with suburbs about 272,024 live on industry, transport and trade. As the Census reports of 1921 show, this number was even greater then and of the entire population which was less in that period about 335,444 had these callings. The remarkable decrease in this number is apparently due to the universal depression in trade and commerce. The number of people who live on religion, law, medicine, instruction, letters, arts etc., and on service particularly in the State has increased by several thousands since 1921 but still it is not altogether more than 51,411 as the Census reports show.

THE HINDU SOCIETY IN OLD CALCUTTA

The early Hindu settlers of Calcutta were the Seths and the Basaks who were the native traders. Documents are wanting to give a picture of their Society. The first Calcutta Journals, the *Bengal Gazette*, *Samachar-darpan*, *Sangbad-darpan* and *Samachar-chandrika* were published between 1816 and 1822 and it is in these Journals that we get for the first time pictures of the contemporary Hindu society.

The *Suttee* represents the darkest feature of this Society. Though the practice of the immolation of widows was nothing special to India in early days the fact remains that no attempt was made by the Hindu intelligentsia to put a stop to it before the end of the first quarter of the 19th century. It should however be noted that the Pandits of Benares tried to check it to some extent by issuing the religious injunction that

widows below the age of 16, the widows who are pregnant and those who have little children to nourish should not be permitted to perform the *Suttee*. It seems curious that the largest number of *Suttee* used to take place in Calcutta and other places in its vicinity whereas the number of *Suttees* in other parts of Bengal was much less. The following figures appearing in the contemporary local Newspapers give a picture of it for three years :

	1815	1816	1817
Calcutta and Suburbs	... 253	289	441
Dacca	... 31	24	52
Murshidabad	... 11	22	42
Patna	... 20	29	39
Benares	... 48	65	109

Amongst the European visitors Valentjn in 1677 and Hamilton in 1727 wrote about the practice of *Suttee* from personal observation. It was in 1829 that Raja Rammohan Ray in face of some opposition from the orthodox Hindu society moved the Government of Lord William Bentinck to stop this practice by legislation.

The places of greatest attraction in the Hindu Society of Calcutta in those days were the private residences of some of the Zemin-dars who were patrons of art and literature. The most illustrious amongst these people was no doubt Raja Nabokissen of Shovabazar who had played some important part in the history of the first British settlement in Calcutta by helping the English considerably during their troubles with the Nawab. Not only was the Raja immensely rich but he was also an enlightened man in his days and was a great patron of art and literature and the members of his family followed this tradition for a long time. The following account from his *Memoirs* will speak not only about his own tastes but also about those of the aristocratic Hindu society in his days :

“His appreciation of fine arts, music in particular, was in every way worthy of himself. Haru Thakur and Nitai Das, well-known as composers of songs, were his *protéges* and he introduced in Calcutta

society and popularised the *nautch*.....It is *Bai-nautch*. The songs of Kabis were a favourite entertainment of Hindu society. They were a curious illustration of the blended powers of metrical composition and controversy; songs composed by one person or party and sung before an assembly were then and there answered by another. The answer brought a reply and so the song duel went on till one side was fairly exhausted.....Of another kind of musical entertainment known as *Akhrai*, the Maharaja was a distinguished and probably the first patron. Kului Chandra Sen who was not only competent in *Akhrai* but probably its founder, received great encouragement. A cousin of Kului—Ram Nidhi Gupta—popularly known as Nidhoo Babu, made great improvement in the art. Distinguished musicians, singers and players on instruments came to him attracted by his fame as a votary of Muses and none went disappointed." Such were the ways of the aristocratic Hindu society in Calcutta and those who were equally enlightened followed the same customs. The patronage of the Zemindars, in fact, kept the art and literature of the country living. When these functions used to take place in the houses of the rich people the public were not excluded from attending them and had a considerable share in the enjoyment.

Amongst the religious ceremonies the Durga Puja used to be performed in the houses of these rich people with singular pomp and the whole Hindu society of Calcutta was astir to attend it. A contemporary journalist gives an account which is worth quoting (*Asiatic Journal* 1816):

"The festival of Doorga Pooja is now celebrating in with all the usual concomitants of clamour, tinsel and glare. The houses of wealthier Bengalees are thrown open for the reception of every class of the inhabitants of this great city; the hospitality so generally displayed, is worthy of every praise which it is in our power to bestow. We had no opportunity on Monday evening of discovering in what particular house the attraction of any novelty may be found but from a cursory view we fear that the chief singers Nik-hee and Ash-roon, who are engaged by Neel Mune Mullik and Raja Ram Chunder, are still without rivals in melody and grace. A woman, named Zeenut, who belongs to Benares, performs at the house of Budr Nath

Baboo, in Joro Sanko. Report speaks highly of a young damsel, named Fyz Boksh who performs at the house of Goroo Persad Bhos."

Besides these kinds of amusements the indigenous dramatic performances called *Yatra* were very popular. These *Yatras* which still survive have more or less a religious character and deal with classical topics. They are less dramatic in character. The Bengali drama came into being under western influence between 1852 and 1872. In the first stage remarkable attempts were made by some Bengali gentlemen of social standing to have their own theatres for the amusement of their friends. On December 28, 1831 the Hindu Theatre was started by Prasanna Kumar Tagore. A Theatre belonging to Nabin Chandra Basu, a wealthy resident of Shyambazar was started as early as 1833 and in 1835 it staged a dramatic version of *Vidyasundar*. From 1852 more systematic attempts were made in this direction and the Bengali stage and modern Bengali drama came into being. But in the early days of Calcutta the Hindu society had to remain contented with the old *Yatra* which was largely appreciated.

The temple of Kalighat was the place of pilgrimage for orthodox people in those days as it is even now. Evidences are wanting to determine the date of the foundation of the Kali temple at Kalighat. But we have seen that the place is mentioned as early as 1495 by Vipradasa in *Manasa-mangal*. The mythology would tell us that when Siva was roaming all over the world with the body of the dead Sati unmindful of everything else, Vishnu with his discus cut the body of the Sati into 51 pieces, each of which fell in a particular place. All these places came to be held sacred to the Hindus (*pitha-sthana*). Kalighat commemorates the place where the toe of the right foot of Sati fell. Whatever the significance of the myth may be, Kalighat is still sacred to the Hindus all over India and the Hindi invocation *Bam Kali Kalkattawali* points out how widely the Goddess of Kalighat is esteemed even in Northern India.

On account of the importance of the place in the eye of the public even the East India Company used to pay respects to the

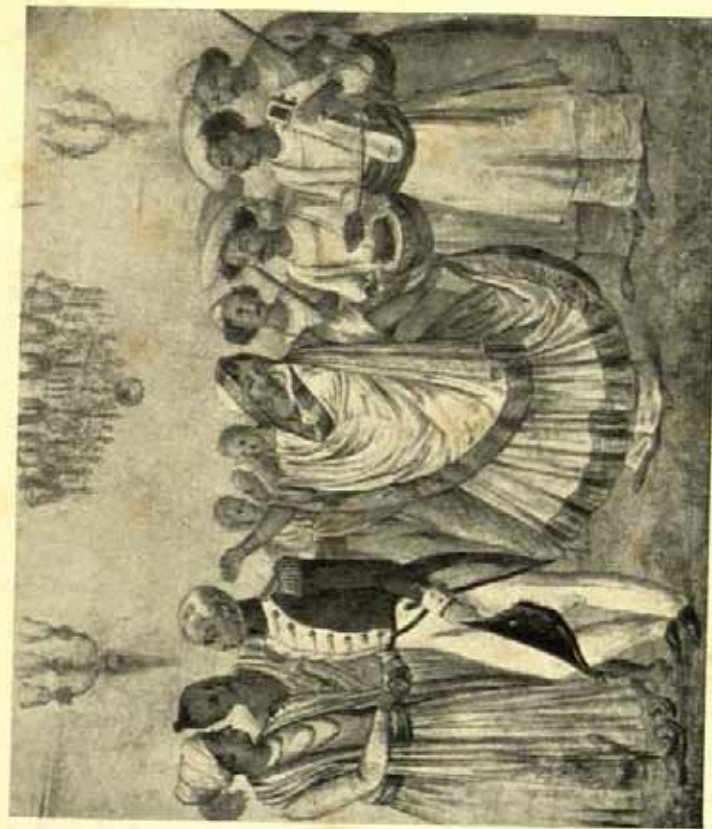
shrine. It is said that in their earlier days the Company used to offer Puja to the deity. In the *Life and Times of Carey, Marshman and Ward* it is said :
 The worship of the Goddess "Last week a deputation from the Government went in procession to Kalighat and made a thank-offering to this Goddess of the Hindus, in the name of the Company, for the success which the English have lately obtained in this country. Five thousand Rupees were offered. Several thousand natives witnessed the English presenting their offerings to this idol."

A contemporary account says : "The daily offerings to this Goddess are astonishingly numerous, on days when the weather is very unfavourable not less than 320 pounds of rice, twenty-four of sugar, forty of sweet-meats, forty of clarified butter, ten of flour, ten quarts of milk, a peck of peas, eight hundred plantains and other things are offered, and eight or ten goats sacrificed. On common days of all these things three times the quantity, and at great festivals or when a rich man comes to worship, ten, twenty or forty times this quantity and as many as forty or fifty buffaloes and a thousand goats are slain."

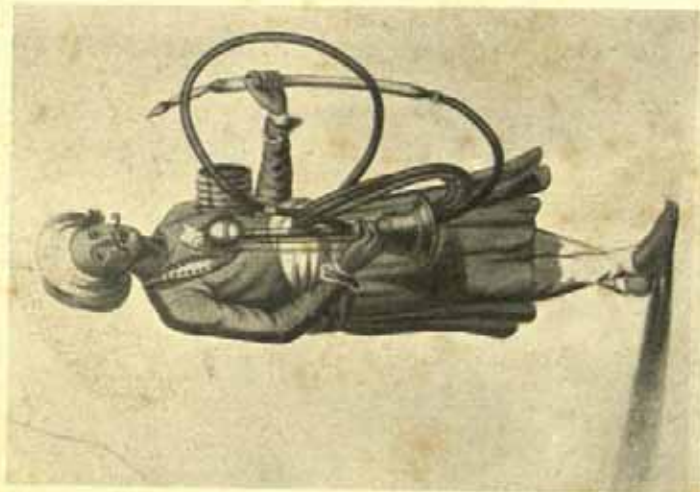
The same account gives us an idea what the rich people used to spend for worshipping the goddess. When Raja Nabokissen paid a visit to the temple at Kalighat he spent not less than 100,000 Rupees on the worship of this goddess. Amongst the offerings was a gold necklace valued at 10,000 Rupees, a rich bed, silver plates, dishes and basins, sweetmeat and other food sufficient for the entertainment of a thousand persons and trifling presents of money to nearly two thousand of the poor.

THE EARLY EUROPEAN SOCIETY.

The European society in Calcutta in earlier days of the English settlement was not quite a normal one. It was an age when communication with their motherland was not so brisk and the Europeans were placed in a country where they were practically



BAI-NAUTCH IN OLD CALCUTTA



THE HOOKKAH

isolated from the people and had to communicate with them only in matters of business. Besides in order to be acclimatised in the tropical climate of the country they had to change some of their habits. "The Home Government did what they could to restrain the licentiousness of their servants abroad. They sent out strict rules for the conduct of their subordinates and directed that hardened offenders should be at once sent home. They also directed the use of a form of prayer, beseeching God that 'these Indian nations, amongst whom we dwell, seeing our sober and righteous conversation, may be induced to have a just esteem for our most holy profession of the Gospel.' "

Even the European writers admit that the early state of European society in Calcutta did not represent a high state of morality. The following satirical sketch published in Hickey's Gazette in 1780 gives a picture of the society of those days :

Q. What is commerce ?

A. Gambling.

Q. What is the most cardinal virtues ?

A. Riches.

Q. What is the amor patriae ?

A. Amor sui.

Q. What is fraud ?

A. Detection.

Q. What is beauty ?

A. Paint.

Q. What is punctuality ?

A. An observation of the appointments of duelling and intriguing.

Q. What is gentility ?

A. Extravagance.

Q. What are public taxes ?

A. Pack saddles.

Q. Who are the people ?

A. Nobody.

The following published in a Calcutta newspaper in 1781 tells the same story :

WANTED

A resolution not to bribe, or a determination not to be bribed.

Lost—the dignity of high life in inattention to trifles.

Stolen—into the country, the inhabitants of the Esplanade.

On sale—For ready money whatever ought to be purchased by merit only.

The first English settlement in Calcutta is accompanied with a romance. Sometime in the year 1678 Charnock who was walking about the banks of the river at Hooghly observed a young Hindu widow of beautiful aspect, gorgeously arrayed, proceeding towards the funeral pyre of her aged husband. The too susceptible Charnock became smitten with her charms and as she appeared to be reluctant to sacrifice herself, he with some assistance rescued her, took her to his home and she became his wife and bore to him several children. She died and her remains were interred in the family vault in St. John's Churchyard where her husband used to sacrifice a fowl on the anniversary of her death.

The romance
of the first
settler

Among the early English settlers in Calcutta early rising was a rule and a morning ride was frequently indulged in. According to a contemporary writer : " At four o'clock in the morning while it is yet utterly dark, there is an universal stir throughout the house, much talk of horses, hats, whips and coffee, and a voice at the door enquiring whether a ride or a drive would be preferable. Work also began early, the hours at Public offices being from 9 o'clock to 1 in the morning and from 7 o'clock till 9 o'clock in the evening. Dinner was served at 2 and was a huge affair. Much wine was drunk." A wag in the *Calcutta Gazette* of October 9, 1788 suggests the following "Guides to health"—"The gentlemen are particularly entreated not to eat above four pounds of solids at a meal, or drink above six bottles of claret. Dancing will be extremely fatal to the ladies, if taken more than three times a week, and they are positively forbid

The daily habit

to wear full dresses of either satin or velvet, until the 1st November."

A French scientist, Victor Jacquemont, who was in Calcutta in 1829 speaks about the daily habits of the English in Calcutta in the following terms :

"All around me take three meals a day and religiously abstain from mixing water with the most spirituous wines coming from Spain and Portugal. Then when it becomes cool with the nightfall they get on horseback and both young and old gallop for several hours like automats without any purpose. They come back home all in sweat and for having an easy and light night sit at the table where they remain for two hours and retire only for going to bed. There is much of stupidity in this exhibition of *manliness* which the English think themselves obliged to make."

In other places of his account Jacquemont strongly speaks of the intemperance, love of luxury, absence of social virtues and vanity being the characteristics of the Anglo-Indian society of Calcutta.

"The rage for smoking," wrote a contemporary chronicler in 1789 "extends even to ladies, and the highest compliment they can pay a man is to give him preference by smoking her *hookkah*." To continue in the words of another contemporary chronicler "the custom of reposing if not sleep after dinner is so general that the streets of Calcutta are, from four to five in the afternoon, as empty of Europeans as

The rage
for smoking
hookkah

if it were midnight. Next come the evening airings on the course, where everyone goes, though sure of being half suffocated with dust. On returning thence, tea is served and universally drunk here even during the extreme heats. After tea, either cards or loo fill up the space till ten when supper is usually announced. Formal visits are paid in the evening, they are generally very short as perhaps each lady has a dozen calls to make and a party waiting for her at home besides. Gentlemen also call to offer their respects and if asked to put down their hats, it is considered as an invitation to supper."

From a letter written by Cornwallis to his son at Eton we get

a glimpse of the daily habits of an Englishman in Calcutta in his days: "I get on horseback just as the dawn of day begins to appear, ride on the same road and the same distance, pass the whole forenoon after my return from riding in doing business.....drive out in a phaeton a little before sunset, then write or read over letters or papers on business for two hours, sit down at nine...to some fruit or biscuit and go to bed after the clock strikes ten." Public ceremonies were held in the mornings. It was the custom of Cornwallis who did not set much store by formalities, to give the word of command, "off coats" as soon as he sat down to table, in order to make his guests more comfortable.

Calcutta society in those days was full of gaiety and there was no dearth of amusements. Billiards were then as now a favourite game. "The sums won and lost must keep the blood in perpetual fever. In private families, the billiard is a kind of state-room. At the coffee houses you are accommodated with tables and attendants for eight annas or half a rupee, by candle-light, a certain number of hours—every coffee house having at least two tables so that men of spirit have as many fashionable opportunities of themselves here as Europeans can boast. Selby's Club was a famous gambling one but Lord Cornwallis put down public gambling with a high hand."

Boating in long handsome boats called snake-boats was much practised, particularly in the evening, with bands of music. Gentlemen kept their pleasure yachts and went occasionally in them with their friends to Chandernagore or Shuksagaur on pleasure trips. There are a number of contemporary accounts of such boat trips and of the different kinds of native boats which were used for such trips.

Stavorinus states in 1770 about such trips: "Another boat of this country, which is very curiously constructed is called a Mour-pankhy; these are very long and narrow and sometimes extending to upward of a hundred feet in length and not more than eight feet in breadth, they are always paddled, sometimes by forty men and are steered by a large paddle from the stern, which is either in the shape of a peacock, a snake or sometimes other animals, the paddles are

directed by a man who stands up and sometimes makes use of a branch of a plant to regulate their motion, using much gesticulation and telling stories to excite either laughter or exertion. In one part of the stern is a canopy supported by pillars on which are seated the owner and his friends, who partake of the refreshing breeze of the evening. These boats are very expensive, owing to the beautiful decorations of painted and gilt ornaments, which are highly varnished and exhibit a considerable degree of taste." An account of Warren Hastings' trip to the *sagaur* says "their budgerows were well stored with provisions, and every requisite etc.; so with pendants flying, and bands of music to the last man and instrument to be found in Calcutta, they attended him to Sagaur, the extremity of the river." Lord Wellesley's state barge is described in 1803 as "richly ornamented with green and gold, its head had a spread eagle gilt, its stern a tiger's head and body, the centre would convey twenty people with ease."

The high officials in those days used to live in greater luxury than was possible later. An immense number of servants was kept in addition to slaves. "One hundred and ten servants to wait upon a family of four people," writes Macrabbie, Secretary and brother-in-law of Francis, "and yet we are economists."

Previous to the Battle of Plassey (1757) there was hardly any metalled road in Calcutta. This is why carriages were not much used. Palanquin was greatly in vogue as it was the most convenient conveyance. The Governor and the senior member of the Council only used carriages.

Racing was then popular in Calcutta as now. There were two race courses, one near Garden Reach and the other on the maidan. There was so much of enthusiasm about it that in 1780 a subscription plate of Rs. 2,000 was advertised and it was stated that at the close of the race the stewards would give a ball to the gentlemen and ladies of the settlement. Lotteries were then the order of the day.

It has been stated by more than one traveller that English

settlers of those days were hospitable. In an account of travels (1760—1768) it is observed : “There is no part of the world where people part with their money to assist each other so freely as the English in India.” The guests used to be treated sumptuously as is proved by the following account : “Breakfast is described as the only *degage* meal every one ordering what is most agreeable to their choice and in elegant undress chatting *a la volonte*, whilst on the contrary, dinner, tea and supper are kinds of State levees. At twelve a repast is introduced, consisting of cold ham, chicken and cold shrub. Supper was light at 10 o'clock, a glass or two of light wine with crust, cheese, then the hookkah and bed by 11. Lord Cornwallis on the New Year's Day 1789 invited a party to dinner at 3½ at the Old Court House. Turtle and turkey courted the acceptance of the guest, a ball opened at 9½ in the evening, supper at 12, they broke up at 4 in the morning.”

About drinks it is said : Wine is the heaviest family article, for whether it is taken fashionably or medicinally, everybody drinks at least a bottle per day and gentlemen four times that quantity. Beer and porter were little used, the favourite drinks were madeira and claret, cider and perry also formed part of the beverages..... ladies drink their bottle of claret daily while gentlemen indulged in their three or four and that at five rupees a bottle.

There were eight hotels in Calcutta in the eighteenth century : the London, the Harmonic which occupied the present Police Court building, the Union, Wright's new Tavern near St. John's Church, the Calcutta Exchange, the Crown and Anchor, Beard's Hotel and Moor's Tavern. ‘Monsieur de la Gallais Tavern’ was famous for public breakfast and masonic banquets. Besides these there were in 1800 eleven punch houses and several eating houses and lodging houses in different parts of the town. There was a theatre in Calcutta before the sack of Calcutta by Siraj-ud-dowla. It was rebuilt in 1775-76 by public subscription. The theatre was performed by amateur actors. A ball room was attached to the theatre.

Hôtels and Theatres

THE PORTUGUESE IN CALCUTTA.

Some of the Portuguese of Hooghly followed Job Charnock to Calcutta. They were given a plot of land at the site of the Old Fort for the purpose of erecting a chapel. The Augustinians immediately built a wooden chapel on the spot but it was pulled down in 1693 by the order of Sir John Goldsborough, the Chief Governor of the East India Company. The chapel was rebuilt in brick in 1700 further away from the old chapel in Murghihatta where the Cathedral now stands. In 1720 the Chapel was enlarged under the direction of the Vicar. It was ransacked in 1756 by the Nawab but the Chapel was saved. Towards the end of the 18th century the Catholic community in Calcutta was growing and the need for a bigger Church was felt. The new Church which still stands was therefore constructed in 1797.

Portuguese
Churches

The Portuguese, their descendants and converts who were first settled in Murghihatta subsequently dispersed to other parts of Calcutta. A number of them lived in the locality between Dharamtolah and Bowbazar Streets which was a fashionable quarter of Calcutta in those days and was known as the European quarter. The Catholics who settled in Baitakkhana obtained permission from Lord Wellesley in 1803 to build a new Church. This Church, the Church of our Lady of Dolours was constructed in 1809-10.

Another Church, the Church of the Sacred Heart of Jesus was built on the Dharamtolah Street by the grandmother of Sir Walter de Souza.

Of the descendants of the Portuguese in Calcutta the name of Henry Louis Vivian Derozio is still dear to the Indians. He was born in 1809 in a house on the Lower Circular Road which is still in existence. At the age of eighteen he published his first book of poems which were well spoken of in the London Press and won for him the post of sub-editor of the *India Gazette* in 1826, and soon after that he was appointed professor in the Hindu College, now the Presidency College. He was a remarkably successful teacher and

Derozio

taught literature, history and philosophy. He "possessed the rare power of weaving interest around any subject he taught." He was loved by his Indian students many of whom became very distinguished men of Bengal. "He worked for the emancipation of Hindu society and instilled into his pupils the ideals of liberalism and taught them to think for themselves." This brought in difficulties and Derozio was compelled to resign. But his pupils still loved to receive instructions from him as they did before. It has been justly said about him "the gifted Eurasian teacher, philosopher and poet, during the short period of his connection with the Hindu College did more to arouse, quicken and impel the thought of Young India than any man then living or since dead." He was an eloquent orator and had a remarkable journalistic career. He died in 1831 at the early age of 23 deeply mourned by his friends and admirers.

CONTACT WITH THE WEST

No healthy contact between the European and Hindu society took place before the end of the eighteenth century. The necessity of a better understanding between the two communities was first felt for the improvement of the administrative machinery. It was at the instance of Warren Hastings that serious attempts were made to acquire a knowledge of the Hindu Law and Custom.

Real contact between the two communities was started through the efforts of sympathetic scholars. The first amongst these was probably Sir William Jones—the famous Orientalist. Jones who was already versed in Arabic and Persian came to Bengal as a Judge of the Supreme Court. As a man of scholarly temperament he soon discovered that the field of research was very large in India. He founded the Asiatic Society of Bengal in 1784 and devoted himself to the study of Sanskrit with the help of Pandits. In 1788 he pointed out to the Governor-General, Lord Cornwallis, the crying need of a digest of Hindu and Mahomedan Laws. As soon as the necessary sanction was given by the Government Jones entered upon this colossal task, and carefully selected

Sympathetic
Scholars

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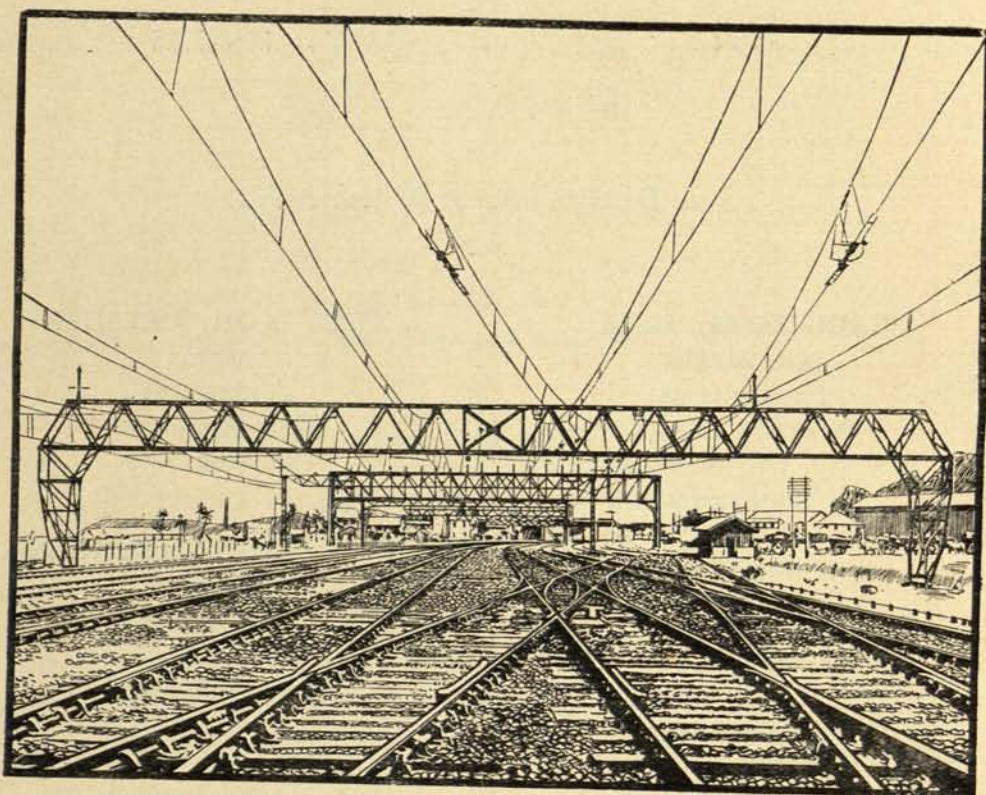
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AGENTS:

KARACHI. DELHI. BOMBAY. LAHORE. RANGOON. COLOMBO.

a number of Hindu and Mahomedan scholars to assist him in his work. The work was not finished during his lifetime. They were completed through the cares of Colebrook. *The Mahomedan Law of Inheritance* was published in 1792 and the *Ordinances of Manu* in 1794.

The tradition of Sir William Jones was followed for some time by Orientalists like Colebrook, Wilson and others who tried to come into closer touch with the native scholars to be able to understand better their culture. A real necessity was felt by the authorities to train the English civilians in the language and the literature of the country and for that purpose the College of Fort William was started in 1800.

The people of the country on the other hand began to appreciate better the value of the European civilization through the efforts of people like Rev. Alexander Duff, David Hare, Derozio and Captain D. L. Richardson. These

Rev.
Alexander Duff

people as teachers not only aroused a genuine interest for English literature in the Bengali students but won them over to their side by establishing bonds of real love and affection. Alexander Duff reached Calcutta in 1830 and opened an Institution in the same year for the propagation of the Gospel through education on Western lines through the medium of English. This was the General Assembly's Institution. On account of unavoidable circumstances he left this Institution in 1834 and founded another College called the College of the Church of Scotland. The two colleges were however amalgamated in 1908 as the "Scottish Church College." He started the first Institution with 7 students but the number soon swelled to 1,200. He also opened a girls' school in 1857.

David Hare
and Captain
Richardson

David Hare was practically the father of native education, was one of the founders of Hindu College and a loving teacher. Captain Richardson came to India in 1819 as a military officer but gave up his office as an invalid. He was appointed the Principal of the Hindu College and served as the Principal of various colleges till 1861. "He was a sympathetic tutor, absolutely

devoid of any race prejudice and was on terms of intimacy with many leading Indians of Calcutta. It was he who created a genuine taste in Bengali students for the literary treasures of the West."

At about the same time various missionary Societies were making a tremendous effort to give the people education on Western lines. Towards the close of the last century they were teaching about 120,000 pupils in the country and it was nearly five times the number of students in the Government institutions.

Social intercourse between the European and Indian society was not wholly lacking. When the first Bengali plays were being staged through the efforts of wealthy Indian gentlemen the audience was a mixed one. Many European gentlemen were invited to witness the performances and the band from the Fort William often played the Orchestra. When a play had been staged in the house of the Paikpara Raj in 1858 Sir Frederick Halliday, the Lieut.-Governor of Bengal attended with his family and there were besides many English ladies amongst the guests invited. One of the actors was warmly congratulated by Sir Frederick.

Englishmen also sometimes fought to remove the just grievances of the Indians. When the Indigo planters in Bengal chose to oppose English officials and Indian public men, a fierce agitation was started in Calcutta. Rev. James Long, a missionary imbued with the true spirit of Christianity, translated into English *Nil Darpan* — "Mirror of Indigo," a Bengali drama which dealt with the cruelty with which the Indigo planters used to treat the helpless *ryots*. In the introduction to the English translation Rev. Long commented on the propaganda done by some of the English Newspapers in favour of the planters. Long was brought to trial on July 19, 1861 and sentenced to a month's imprisonment and a fine of Rs. 1,000 which was immediately paid by an Indian citizen of Calcutta, for the sentence was regarded as a grave miscarriage of justice by all impartial observers including the then Bishop of Calcutta, Dr. Cotton.

Through the activities of the missionaries a number of young men with brilliant prospects became converted to Christianity. But

there was no further progress in this direction after sometime on account of the reactionary movements in the Hindu society itself and a closer contact between the East and the West gave rise to other movements.

NEW RELIGIOUS MOVEMENTS

Western influence on the Hindu society manifested itself in various ways. It indirectly contributed to the rise of the Brahma

The
Brahma Samaj
Movement

Samaj Movement which was started by Raja Rammohan Ray. Rammohan was in Calcutta from 1814 to 1830. He was not only an advocate of English education but also at the root of several reformist movements, both

social and political. In respect of religion he was anxious to introduce a new mode of worship in the Hindu religion. "He was opposed to the conventional Hindu worship of gods and goddesses, opposed to the caste system, opposed to Suttee which he helped to abolish. He was a Vedantist and his years of stay at Calcutta were occupied with preaching the monotheistic doctrines of Vedanta." In 1828, he started the *Upasana-sabha* in which a congregational mode of worship was introduced. Rammohan left for Europe in 1830 where he died in 1833. His religious movement in Calcutta which had not died away in the meanwhile was taken up again in right earnest by Maharshi Debendranath Tagore in 1843. Debendranath had a number of co-workers in the task. Though they questioned the infallibility of the Vedas they made their stand on the Upanishads. There was therefore no sharp difference with the orthodox section of the Hindus. But Keshab Chandra Sen soon tried to give a distinct shape to this movement, and that led to a great schism amongst the followers of the new movement. The faith of Keshab Chandra was more eclectic in nature than that of Debendranath. Keshab Chandra was greatly influenced by the Bible and did much to propagate the new faith by organising missionaries. In 1866 he seceded from Debendranath

Keshab Chandra
Sen

Tagore and founded the 'Brahma Samaj of India.' Branches of this Samaj were founded in different parts of India. In 1878 a large body of prominent Brahmas separated from Keshab Chandra and founded the 'Sadharan Brahma Samaj' on more democratic lines. This Samaj now claims the largest number of followers.

The conversion of some of the best young men of the country to Christianity and the foundation of the Brahma Samaj had their reactions in the orthodox Hindu society.

Reaction The powerful guardians of orthodox Hinduism were men like Raja Radha Kanta Dev and Ram Kamal Sen. Thus in the informal meeting of the foundation of the Hindu College the orthodox Hindu members refused to work with Raja Ram Mohan Ray who was thus compelled to withdraw from the Committee. Opposition was also offered to the Christian Missionaries and papers were started for that purpose. Derozio was removed from the staff of the Hindu College because his teachings had begun to revolutionize the thoughts of the Hindu boys. Various religious societies were soon founded. In 1830 the *Dharma Sabha* was established under the patronage of Raja Radha Kanta Dev. Great importance began to be attached to the *Bhagavadgita* and the ideas contained in it began to be propagated. Even the great novelist, Bankim Chandra Chatterji helped this movement by publishing a Bengali commentary on the sacred text.

The appearance of a great man like Ramkrishna Paramahansa and his famous disciple Vivekananda saved the Hindu society from complete wreckage. Ramkrishna

**Ramkrishna
and
Vivekananda**

who was probably the greatest *sadhak* of his days was not so aggressive a Hindu as Svami Vivekananda was. It is said that Ramkrishna himself tried, through the medium of all religions, to attain the goal and that in a spirit of toleration he declared that all the religions are equally effective means of attaining the goal. This did not help a little in strengthening the faith in Hinduism. Svami Vivekananda who attained his

first success in the cause of Hinduism at the Parliament of Religions held at Chicago was an apostle of the Neo-Vedantic movement in the country. This movement succeeded in awakening in the hearts of the Bengali youth a consciousness of their ancient religious culture and a sense of duty and responsibility to their spiritual heritage. The Ramkrishna Mission was started by him in 1899 and there are now more than 100 branches of this Mission all over India.

The Arya Samaj has very little following either in Calcutta or in other parts of Bengal. In recent years the Hindu Sabha and the Hindu Mission have been very active particularly amongst the 'untouchables' and the immigrant primitive population in some of the Bengal districts but it is still impossible to estimate the effect of their movements amongst the people.

Arya Samaj
and
Hindu Sabha

NEW SOCIAL MOVEMENTS

Of the new social movements which were started in the 19th century we have already mentioned the attempt made by Raja Ram Mohan Ray for the abolition of the Süttee. The next social movement which agitated the Hindu society to a greater extent was the widow-remarriage movement. As early as 1845 Moti Lal Sil promised to make a gift of Rs. 10,000 to any Hindu who would volunteer to marry a widow of his own faith. His appeal to the orthodox section of the Hindu society met with a strong rebuff. But when Pandit Iswar Chandra Vidyasagar, a man who was widely respected, appeared on the scene the Hindu society could not brush aside the problem so easily. Vidyasagar came out with a book in support of the widow-remarriage. Petitions containing the signatures of a large number of people were sent to the Government and the widow-remarriage Act was passed in 1856. Though not on a wide scale, young widows were now married even in high class Hindu societies.

Widow
Remarriage

The movement has not died away since the time when it was

started. In modern times the Hindu Sabha is one of greatest champions of widow-marriage and there are several societies in Calcutta which advocate the cause of widow-remarriage. The Census report of 1931 records in this respect: An increasing prevalence of widow-remarriage indicated by a decrease in the proportion of widows is evidently shown in each of the three cities, Calcutta, Howrah and Dacca. In Calcutta there has been a decrease in actual numbers of males to 3,760 and of females to 8,439. In Howrah the decrease amounts to 1203 in the case of males and to 1296 in the case of females. The following figures will clearly state the proportion of widows *per mille* in Calcutta and Howrah:

CALCUTTA	1921	1931
Males	35	27
Females	223	181
HOWRAH		
Males	42	218
Females	218	166

Vidyasagar was also instrumental in starting a campaign for the abolition of polygamy which had been the curse of Kulinism in Bengal. In this campaign he was joined by others and in 1855 some leading men of Calcutta and its suburbs submitted a joint petition to the Legislative Council for an act against the institution of polygamy. Similar petitions were also submitted by orthodox Pandits. The Government did not take any action but within a short period the movement succeeded in changing the views of the people altogether in the matter. Education and economic condition also helped considerably in eradicating the evil. Polygamy at present is practically unheard of amongst the Hindus.

APPENDIX

I

NUMBERS OF WORKERS IN EACH OCCUPATIONAL SUB-CLASS AND THEIR PERCENTAGE ON TOTAL POPULATION IN CALCUTTA WITH SUBURBS.

Occupational Sub-class	1 9 2 1 Population 1,132,246			1 9 3 1 Population 1,260,709		
	Number of workers	P.c. of total population	P. c. of females	Number of workers	P. c. of total population	P. c. of females
I. Exploitation of animals & vegetation.	27,389	2.42	11.95	17,017	1.34	9.34
II. Exploitation of minerals.	78	0.01	2.56	93	0.01	6.45
III. Industry	150,899	13.33	7.60	113,786	9.03	6.38
IV. Transport	68,583	6.06	1.59	57,629	4.57	1.58
V. Public force	6,727	0.59	—	7,545	0.60	—
VI. Trade	115,962	10.24	7.55	100,609	7.98	3.67
VII. Public admini- stration	16,873	1.49	1.35	21,058	1.67	0.59
VIII. Profession & liberal arts.	29,734	2.63	8.51	30,353	2.41	9.03
IX. Persons liv- ing on their income.	5,084	0.45	33.73	11,877	0.94	14.02
X. Domestic Service.	75,576	6.67	25.74	100,304	7.96	14.63
XI. Misc. occu- pation.	129,264	11.42	2.72	157,923	12.53	3.54
XII. Unproduc- tive.	23,397	2.07	68.19	15,145	1.20	57.34

II

NUMBERS PER TEN THOUSANDS OF WORKERS OF BOTH SEXES
AND NON-WORKING DEPENDENTS, IN CALCUTTA WITH
SUBURBS AND IN HOWRAH

CALCUTTA				HOWRAH			
1921		1931		1921		1931	
Males	Females	Males	Females	Males	Females	Males	Females
I. Workers ...	7,686 1,810	6,883 1,149	7,595 1,827	4,976 1,097			
Earners ...	— —	6,841 1,146	— —	4,957 1,092			
Working dependents.	— —	42 3	— —	19 5			
II. Non-working dependents.	2,314 8,190	3,117 8,851	2,405 8,173	5,024 8,903			

III

THE NUMERICAL STRENGTH
OF THE FOLLOWERS OF DIFFERENT RELIGIONS

	Calcutta		Suburbs in 24 Perganas		Howrah City
<i>All religions</i>	— 1,196,734	...	63,975	...	224,873
Hindu	— 822,293	...	49,693	...	173,613
Muslim	— 311,155	...	12,478	...	48,286
Christian	— 47,558	...	915	...	2,517
Sikh	— 4,705	...	0	...	164
Jain	— 3,185	...	9	...	57
Buddhist	— 3,021	...	157	...	49
Jew	— 1,829	...	0	...	84
Confucian	— 1,363	...	0	...	0
Zoroastrian	— 1,199	...	0	...	0
Tribal	— 426	...	714	...	103

PRIMITIVE TRIBES

	Total	Hindu	Tribal	Christian	Buddhist
Bengal —	1,781,723 ...	1,056,098 ...	528,975 ...	29,457 ...	187,198
Calcutta —	3,175 ...	1,693 ...	426 ...	963 ...	93

	HINDUS	MUSLIMS
Bengal —	21,155,972 ...	27,810,100
Calcutta —	822,293 ...	311,155

IV

PROPORTIONS PER MILLE OF THE FIVE MOST
NUMEROUS HINDU CASTES

	Brahman	Kayastha	Nama- sudra	Mahishya	Raj- bangshi
Bengal —	65 ...	70 ...	94 ...	107 ...	81
Calcutta —	193 ...	195 ...	5 ...	56 ...	2

CHAPTER V

GENERAL EDUCATION

INDIGENOUS SYSTEM OF EDUCATION

The details collected at the beginning of the 19th Century through efforts of some officials appointed by the Government show that the percentage of literate people in Bengal was not negligible. According to the estimate of Rev. Adam (1835) the number of indigenous schools in Bengal and Bihar was something over 100,000. The calculation was approximate but Adam recorded that "the system of village schools is extensively prevalent, that the desire to give education to their male children must be deeply seated in the minds of parents, even of the humblest classes, and that these are the institutions, closely interwoven as they are with the habits of the people and the customs of the country."

The number of these indigenous schools in Calcutta was considerable. A minute enquiry instituted in 1818-19 by the Calcutta School Society showed that within the legal limits of Calcutta the number of such schools was 211 in which 4,908 children received instruction. This figure represented about one-third of the number of the Bengali children capable of receiving instruction. In 1821, of these schools 115, containing 3,828 scholars received books from the School Society, and were examined and superintended by its officers and agents while 96 schools containing 1,080 scholars, continued entirely unconnected

with the Society. In 1829 the number of schools in connection with the Society had been reduced to 81. *The Calcutta School Book Society* was founded in 1817 with the object of the preparation and gratuitous supply of works useful in schools and seminaries. The success of this Society led to the foundation of another. *The Calcutta School Society* was started in 1818 with the object of encouraging the vernacular education already prevalent in the country. The improvements introduced by it were various: "Printed instead of manuscript school-books are now in common use. The branches formerly taught are now taught more thoroughly, and instruction is extended to subjects formerly neglected, viz., the orthography of the Bengali language, geography and moral truths and obligations. The mode of instruction has improved. Formerly the pupils were arranged in different divisions according as they were learning to write on the ground with chalk, on the palm-leaf, on the plaintain-leaf, and on paper respectively, and each boy was taught separately by the school-master in a distinct lesson. The system of teaching with the assistance of monitors, and of arranging the boys in classes, formed with reference to similarity of ability or proficiency, has been adopted."

The Society further organised a system of superintendence by the appointment of a Pundit and a Sircar, to each of the four divisions into which the schools were divided. It also arranged for examinations, both public and private. The measures adopted by the Society for the improvement of schools received special approbation from the Court of Directors and the Society was given a grant from the Government. The activities of the Society however became very limited since 1833.

The number of Institutions of Hindu learning in Calcutta and the district of 24-Parganahs was considerable. The number of such institutions in Calcutta in 1818 was 28 which are mentioned by name. There were probably a few more which were not taken notice of. The *Nyaya* and *Smriti Shastras* were principally taught in these Institutions. These colleges

Institutions of
Hindu Learning

were situated in the residences of Pundits in the following localities of Calcutta :

Hati-Bagan	...	...	6
Ghoshalu-Bagan	...	...	1
Shikdarer-Bagan	...	...	1
Bag-Bazar	...	...	2
Talar-Bagan	...	...	1
Lal-Bagan	...	...	2
Shimla	...	...	3
Huree-Tukee-Bagan	...	...	1
Arukoollee	...	...	3
Thunthuniya	...	...	2
Mulunga	...	...	1
Shova-Bazar	...	...	1
Veerupara	...	...	1
Italee	...	...	1

Mr. Ward says that 173 students were actually getting their training in these colleges.

Hamilton states in 1801 that within the limits of 24-Parganahs excluding Calcutta there were about 190 Seminaries in which Hindu Law, Grammar and Metaphysics were taught. These institutions were maintained by the voluntary contributions of rich Hindus and the produce of charity lands, the total annual expense being Rs. 19,500.

Adam after making a thorough investigation into the condition of education in Calcutta and the different districts of Bengal submitted to the Government that the "existing native institutions from the highest to the lowest, of all kinds and classes, were the fittest means to be employed for raising and improving the character of the people—that to employ those institutions for such a purpose would be the simplest, the safest, the most popular, the most economical, and the most effectual plan for giving that stimulus to the native mind which it needs on the subject of education, and for

eliciting the exertion of the natives themselves for their own improvement, without which all other means must be unavailing."

Adam thus recommended an improvement of the Vernacular Schools as they were based "on the old municipal system of the Hindus, by which each village had its chief, its accountants, its priest, smith, carpenter, potter, barber, washerman, poet, doctor, and though last, not the least, its village or hedge schoolmaster, called Guru Mahashay. The village system was a brotherhood."

Adam's
Recommendation

It was rather unfortunate that Adam's recommendation based on very sober judgments was rejected by the Calcutta Council of Education as "almost impracticable." The Council was of opinion that "efforts should be at first concentrated to the chief towns or Sudder stations of districts, and to the improvement of education among the higher and middling classes of the population."

Mr. Adam resigned his office in disgust and the number of vernacular schools in the country gradually dwindled away for want of support. The effect of this negligence was so far-reaching on the literacy of the country that when an estimate of it was taken by the Inspector of Schools in 1861 it was found out that about three persons only per every hundred in the country were literate. Various efforts were subsequently made to improve the condition of vernacular schools but to no appreciable effect.

The first Government College to be started was the *Calcutta Madrasa*. It was founded by Warren Hastings in 1790 with the object of imparting instruction in Arabic as well as Persian. Persian was still the court language of the country. Public help was not wanting in financing the Institution as Maharaja Nobokissen came forward with the handsome donation of Rs. 300,000. The *Calcutta Madrasa* is still perpetuating its old traditions. It still affords Moslem students not only of Bengal but also of other Provinces facilities for instruction in advanced Islamic courses.

The Govt. steps
for imparting
Oriental learning

Warren Hastings was willing to accord the same patronage to the Hindu Pandits. But the *Sanskrit College* was not founded till 1824 when Lord Amherst became the Governor-General. But more important measures were taken in the meantime to introduce English education to the youth of the country.

ENGLISH EDUCATION

The greatest advocate of English education was Macaulay (afterwards Lord Macaulay) who came to Calcutta as the first Law Member of Governor-General's Council.

Lord Macaulay He expressed his views in a minute dated the 2nd February 1835 in the following manner:

"I think it is clear that we are not fettered by the Act of Parliament of 1813, that we are not fettered by any pledges expressed or implied, that we are free to employ our funds as we choose, that we ought to employ them in teaching what is best worth knowing, that English is better worth knowing than Sanskrit or Arabic, that the natives are desirous to be taught English and are not desirous to be taught Sanskrit or Arabic, that neither as the language of law, nor as the language of religion has the Sanskrit or Arabic any peculiar claim on our encouragement, that it is possible to make the natives of this country thoroughly good English scholars, that to this end our efforts ought to be directed."

As early as 1823 Raja Ram Mohan Ray had made a similar suggestion to Lord Amherst in an open letter. He resented the Government measure of establishing a new

Raja Ram
Mohan Roy

Sanskrit School at Calcutta of the old type and recommended a more liberal and enlightened educational policy to the Government "embracing Mathematics, Natural Philosophy, Chemistry, Anatomy, with other useful Sciences.....employing a few gentlemen of talent and learning educated in Europe, and providing a College furnished with necessary books, instruments and other

apparatus." The Government however did not move in the matter till 1835 when Macaulay sent his famous minute.

On the 7th March, 1835 the Governor-General in Council passed a resolution directing that all available funds should be henceforth employed for imparting to the native population a knowledge of English literature and Science through the medium of the English language. Thus for the first time a decisive step was taken to deprive the country of a national education and a new system of education was imposed on them in order to make them, in the words of Macaulay himself, "a class who may be interpreters between us and the millions whom we govern—a class of persons, Indian in blood and colour, but English in tastes, in opinions, in morals and intellect."

The
Govt. Steps

The College of Fort William was established in 1800 for the study and training of civilians from 'Home' in the language and literature of the country where they were to work. Since then it became incumbent on the Civilians to pass an examination in the laws and regulations and the languages of the country. Reverend William Carey was appointed teacher of the Bengali and Sanskrit languages in April 1801. Besides Rev. Carey a number of Pandits were employed in the Bengali department during the first eighteen years of the existence of the College. A number of text-books in Bengali were composed and published and besides a Grammar and Dictionary of the Bengali language by Rev. Carey himself.

The College of
Fort William

Several schools on western models came into existence through private efforts at about the same time. About 1780 one Mr. Hodges advertised a school near the Armenian Church for teaching, reading and needle-work. A "Boys' boarding school" beyond Chitpore Bridge was advertised by another. In 1781 Mr. Griffith had a boarding school in his garden house near Baitakkhana. A school for boys was opened by

Schools on
Western Model

Mr. Archer in 1800 and his effort met with success. Other schools, Farell's Seminary and the Dharamtallah Academy, came into existence about the same time. The founders of these schools showed the way and a number of other schools on the same model was soon started, through the efforts of enterprising individuals. The Oriental Seminary was established in 1823 and it gave sound English education unalloyed by missionary influences. Derozio received his lessons there.

But the premier Institution which served the purpose of imparting English education to young Bengal was the Hindu

The
Hindu College

College originally called the *Hindu Mahavidyalaya*. The college was founded on the 17th January, 1817 through the enthusiasm and industry of David Hare and Raja Ram Mohan Ray. The others who joined hands with them were Sir Hyde East, Maharaja Tej Chandra Bahadur, Gopee Mohan Tagore, Joy Kissen Singh, Raja Gopee Mohan Deb and Ganga Narain Das. For several years the College was in a precarious condition till in 1823 through the intervention of David Hare the Government allowed it to stand on the ground acquired for the erection of the Sanskrit College building. In 1825 the college was subjected to the supervision of the President, Committee of Education. The subsequent career of the Institution was glorious. Its boys became the pioneers of all movements which agitated the country. In 1855 the College was taken over by the Government, its name changed into "Presidency College" and chairs for moral and mental philosophy, logic, natural history, astronomy, and geology were established.

The education of girls was not entirely neglected when the indigenous system of education was prevalent in the country. But

Women's
Education

no serious step was taken to impart education on western lines to the girls before the beginning of the 19th century. Some girls' schools had already been founded in Calcutta through private efforts in the last quarter of the 18th century but they were mostly meant for European girls. In 1819 the Calcutta

Juvenile Society was founded for supporting the Bengali Female Schools. It established within a short time a full-fledged girls' school and began to give instruction in reading, writing and needle-work. In 1822 the Ladies' Society for native female education was established.

J. E. Drinkwater Bethune was instrumental in giving a real start to female education in Bengal. A girls' school named after him was founded in 1849. Some of the leading gentlemen of the time like Pandit Bethune Iswar Chandra Vidyasagar, Peary Chand Mitter and Peary Chand Sarkar identified themselves entirely with the cause of female education and public sympathy was not at all wanting. The contemporary Journals expressed every sympathy for its cause.

PRESENT STATE OF EDUCATION

Since the institution of the present system of education in the Province the number of schools both primary and secondary has steadily grown. But the state of education is still far from satisfactory. In Calcutta itself the Corporation, as we have already seen, has made rapid strides since 1923 in imparting primary education to the girls and boys within the city. Some of the municipalities in the districts have also contributed in no negligible manner to the spread of education for sometime past. According to the Government report the number of primary schools for boys and girls in 1935-36 fell from 64,309 to 62,150. But the number of pupils attending primary schools of all types rose from 2,078,079 to 2,114,435. As far as Calcutta is concerned there were on the 31st March 1936 about 512 primary schools of which 230 are managed by the Corporation. Amongst the primary schools in the Province there are about 880 night schools attended by 24,523 pupils and 354 continuation schools with 8,298 pupils.

The Government has before it an elaborate scheme for introducing free and compulsory primary education in the rural areas

(*The Bengal Primary Education Act, 1930*) but it has not yet been introduced on account of acute financial and economic depression. Pending the introduction of the full scheme, the Government has sanctioned an optional scheme for such of the District Boards as will agree to pay their allotment for primary education. The Calcutta Corporation has introduced free and compulsory primary education in one of the Wards of the City at the first stage without levying any education cess.

The number of Institutions for Secondary Education in the Province stands as follows :—

		1932-33	1933-34
Secondary Education	High English Schools ...	1,186	1,221
	Middle English Schools ...	1,873	1,949

A number of high and middle English schools have arrangements for giving manual instruction to their pupils. Some of the schools have introduced the teaching of subjects like dyeing, weaving, carpentry, smithwork etc. A scheme for the introduction of agricultural classes in the non-Government secondary schools was sanctioned by the Government in 1927. In pursuance of this scheme a number of schools sent some teachers for training to the Government Agricultural Farms. These teachers on their return to their respective schools have commenced the proposed work in their schools.

There are at present about 122 High English schools in Calcutta which provide Secondary Education to the boys. Amongst these 60 schools are fully recognised whereas the remaining 62 have been provisionally recognised by the University of Calcutta. Some of these schools, we have seen, are very old Institutions which were founded even before the creation of the University.

The total number of Colleges in the Province is 49 of which 43 are for men and 6 for women. Some of the Colleges for men, the Vidyasagar College and the Asutosh College have opened Women's Department and one of the Girls' High Schools namely the Victoria Institution has started Intermediate and B. A.

College
Education

Classes for girls. Out of the total number of Colleges only 10 are maintained by the Government. The number of students studying in the Colleges increased in 1935-36 from 24,403 to 25,202.

At the close of the year 1932-33 there were in Bengal 18,538 educational institutions for Indian girls. The number of girls receiving education during that year was 500,307. The number of institutions and pupils have been steadily increasing. The Women's Colleges registered 596 students on the 31st March 1934 as compared to 508 of the previous year. Besides these there were 460 girls reading in Arts Colleges for men and in the University Classes.

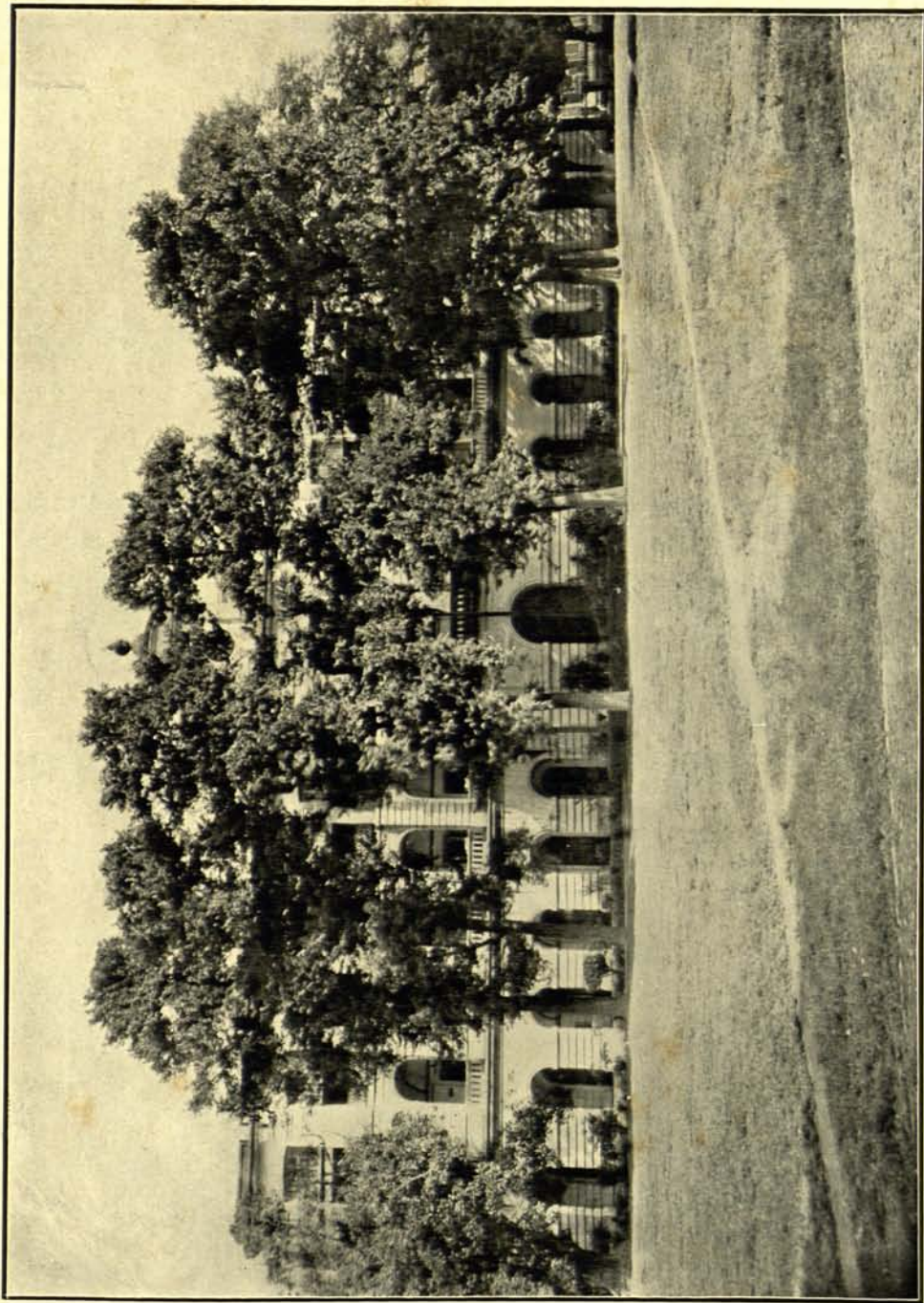
Education of
Indian Girls
and Women

The number of High English schools for girls rose from 39 of the previous year to 54 in 1934. Of these schools 5 only are managed by the Government. The number of Middle English schools was 67 and that of the primary schools was 14,499.

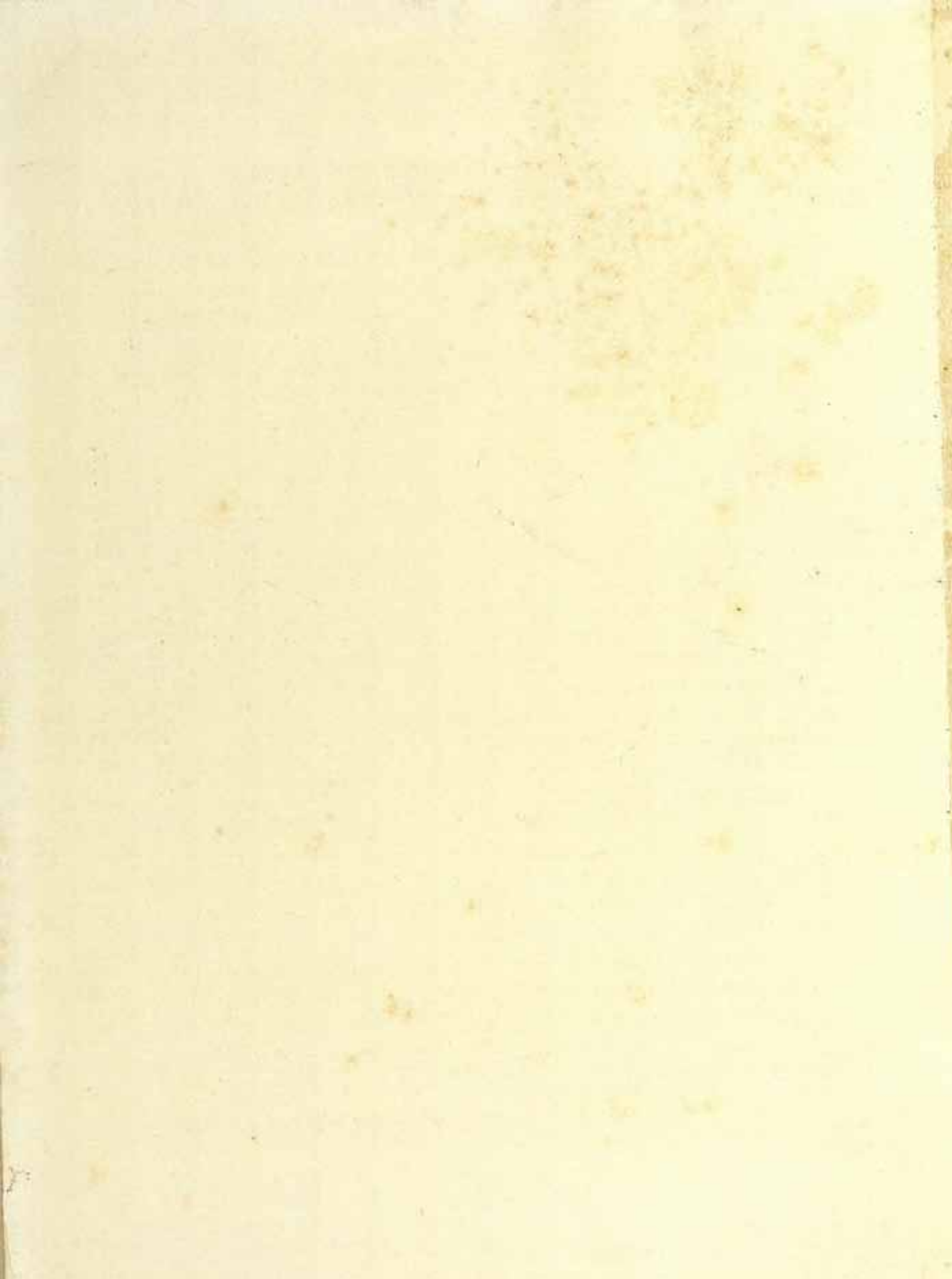
There are two Government Training Colleges one at Calcutta, and the other at Dacca for the training of male teachers. In both these Institutions there were about 151 pupils on the 31st March 1933. All the students read the B. T. Course. Besides these there were 5 normal or first grade training schools in the Presidency. All these schools are maintained by the Government. These schools registered 414 pupils on the 31st March 1933. One of these training schools, namely the Hooghly Training School, imparts instruction in first aid and ambulance work. Lately the Scottish Church College and the St. Xavier's College have been affiliated for the B. T. Examination.

Training of
Teachers

There are also two other types of training schools for teachers namely the Guru and Muallim training schools. These schools which train teachers of boys' primary schools and maktabs were 91 in number with 2407 students. Of these 80 are managed by the Government, one by the Corporation of Calcutta and the rest by the Missionary Societies. Of the Government Guru Training



THE PRESIDENCY COLLEGE, CALCUTTA



Schools 31 were of new type and the rest of old type. It is contemplated by the Government to replace the old type training schools by schools of new type.

Pending the establishment of a Women's Training College by the Government women teachers of Secondary schools continue to receive professional training at the training departments attached to the Loreto House. The number of training schools and classes which afford training facilities to women teachers employed in primary schools and the lower classes of secondary schools are 10 of which 3 are directly managed by the Government and the rest by the Christian and Brahmo Missions.

COLLEGES IN CALCUTTA

The Presidency College was formally established on the 15th of June, 1855, under orders from the Honourable the Court of Directors of the East India Company, though there is evidence that it had already started informally a year previously. The circumstances of its establishment connect it closely with the Hindu College or Mahavidyalaya, founded by a number of Hindu gentlemen with the aid of Sir Edward Hyde East, Chief Justice of the Supreme Court, and opened on the 20th of January, 1817. This origin connects the Presidency College also with the Hindu and Hare Schools, and more specially with the former, which continues the Junior Department of the Hindu College, as the Presidency College continues the Senior. The graduate scholarships attached to the Presidency College are a consequence of this connection, being derived from the Hindu College Fund.

Presidency College is thus in its beginnings carried back to the first efforts to promote liberal education in British India, and is associated with David Hare and Raja Ram Mohan Roy, who were inspirers of the movement which led to the foundation of the Hindu College.

From 1855 to 1910 the Presidency College was administered by the Education Department under the Director of Public Instruc-

tion, Bengal. In 1909 a Governing Body was constituted in accordance with Chapter XIX of the University Regulations, and met for the first time on Tuesday, the 8th of March, 1910.

Post-graduate teaching is now under the control of the University, but 33 members of the staff are also Post-graduate Lecturers. There is a total accomodation for 1200 students in the college of whom 960 are undergraduate, of these 460 are Arts and 500 Science Students. The actual numerical strength of students in 1935-36 was 979. The Library contains about 49,000 volumes.

St. Xavier's College, which is under the direction of the Society of Jesus, was established in 1860 in an imposing building situated on Park Street. The stately portico, the hall and adjoining chapel are a century old and were once part of the "Sans Souci Theatre." The premises are among the largest of any private educational institution in Calcutta. The ample playgrounds are a special feature of St. Xavier's.

The University Department teaches up to the B.A. and B.Sc. degree. Its students number about 1078, the most cosmopolitan set of perhaps any Art College in Bengal, for, besides a large number of Hindu and Mahomedan students, there are some Anglo-Indians, Indian Christians, and a sprinkling of Jews, and Parsees and Buddhists.

For the last 60 years' St. Xavier's has enjoyed a high reputation for Science, due in particular to the efforts of Rev. Fr. Lafont S.J., who for nearly 40 years was a great pioneer of scientific education in Calcutta—a popular lecturer universally esteemed, always the first to acquaint the public with the latest new inventions. With the help of numerous friends, chiefly from among the Indian nobility, he succeeded in getting together a fine collection of Physical Science apparatus. Since his death in 1908, the laboratories have steadily expanded, and a variety of new apparatus, including a large wireless installation has been added to the existing collection.

The College is fortunate in possessing an Astronomical Observatory, rich in instruments of great value. Its 9 inch refracting

equatorial and its 10 inch reflector rank among the largest telescopes in India. The Observatory affords a unique opportunity to students of acquiring a taste for experimental Astronomy.

For nearly 50 years the late Fr. Francotte enjoyed a wide reputation for his meteorological work; but since his death in 1923, the Meteorological Observatory has been closed.

The various libraries in the College contain together nearly 27,000 books. The most remarkable is the Goethals' Indian Library with about 8,000 volumes, collected by the late Dr. P. Goethals, Archbishop of Calcutta, and bequeathed to the College. The books dating from the Portuguese and Dutch periods form a unique treasure, as also the numerous plates—coloured, photographic or engraved—on Archaeology, Ethnology, Botany, Scenery, etc.

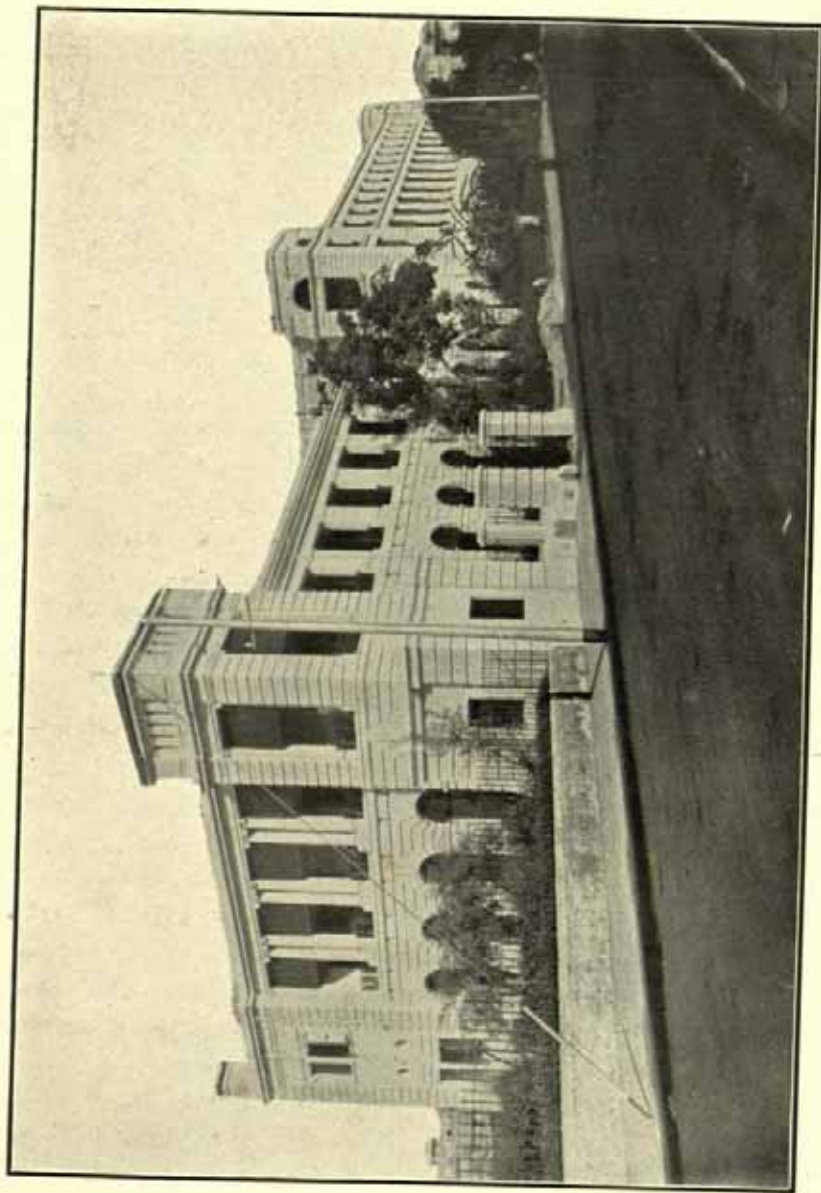
The history of this College, which is situated in Cornwallis Square, may be traced back to 1830, when the General Assembly's Institution was founded by the Rev. Alexander Duff. In 1843, however, Dr. Duff separated from his College and established another College under the name of the Free Church of Scotland Institution. These two Institutions were reincorporated on 1st June 1908, as "The Scottish Churches College" and later on "The Scottish Church College." It is one of the best Institutions managed by missionaries and has done much for the spread of education among Indians. Its hostels are also well managed, and special attention is paid to athletics. The College provides for co-education and the total number of its students in 1936 was about 1,500, out of which 150 were women students. The College Library contains about 16,000 volumes.

The College was founded in 1824 for the encouragement of the study of Sanskrit language and literature and the cultivation of European literature and Science. It is thus one of the oldest Government Institutions. It was connected with scholars like Iswar Chandra Vidyasagar, Mahesh Chandra Nyayaratna, and Hara-

prasad Shstri. The College section is affiliated up to the B.A. standard. The Oriental Department of the College prepares pupils for the First, Second and Title Examinations of the Bengal Sanskrit Association. A special class has been opened for teaching the Vedas and the salary of the Professor is met from a special fund called the Dwarkanath Pal and Madhabchandra Giri funds.

The College was founded for women's education by Mr. J. E. Drinkwater Bethune in 1849. It was first held in the house of Raja Dakshinaranjan Mukherji, Talukdar of Oudh and Zemindar of Bengal in Sukea Street. A building for the institution was built in 1851 on a plot of land given by the same Raja on Cornwallis Street. Mr. Bethune passed away before the building could be completed. So long as he was living all the expenses of the school were met from his own pocket. At the time of his death the Institution with the new building was handed over to the Government. Through the earnest endeavour of Sir Alfred Croft the School was amalgamated in 1878 with another Institution of the same kind, the Banga Mahila Vidyalaya. In 1883, B.A. classes were opened in the College Department and it was formally affiliated to the University in 1888. The College Department is affiliated up to the standard of Intermediate Arts and Science and B.A. The numerical strength of the students in the College in 1936 was 303.

The Vidyasagar College was originally founded in 1859 under the name of Calcutta Training School. It continued its existence in the same condition up to 1862 under the management of its founders. In 1864 the management devolved entirely on Pandit Iswar Chandra Vidyasagar and the name "Metropolitan Institution" was substituted for the old name. In the years 1872 and 1879 the College was affiliated to the Calcutta University first to the standard of an Intermediate college and then as a First grade college. The Institution in its present form was the handiwork of Pandit Iswar Chandra Vidyasagar. It was the first attempt to impart high education to middle class Hindus at a small cost. The name of



THE BAKER LABORATORY, PRESIDENCY COLLEGE

the college was changed by the Board of Trustees in 1917 to Vidya-sagar College in honour of the great man who built it up. The College has at present two departments, one for men and the other for women. It is now affiliated to the standards of Intermediate Arts and Science, B.A., B.Sc., and B. Com. The number of students in the College in 1935-36 was 3476 (of which 207 were women), and is thus the largest in any college in Bengal.

The College has grown out of the City School which was founded in 1879 and formally opened by Lord Ripon in 1884. It is under the management of the Brahmo Samaj Education Society. Its object is to promote "the cause of education in the highest and widest sense, to make that education, comprehending the mind, heart and body and founded on the theistic basis, conduce to the good of man and the glory of God." It is however open to all students without distinction of race, creed or caste. The number of students in 1935-36 was 1003 of which 14 were women. The College is affiliated to the standards of Intermediate Science and Arts, B.A. and B.Sc.

**The City
College**

The Institution was originally established as a school in 1880. It continued for two years under the management of a Committee and in 1882 the management entirely passed into the hands of Sir Surendranath Banerjee, who thus became the sole proprietor of the Institution. By 1884 it became a first grade College and it is now affiliated to the standards of Intermediate Science, B.A., B.Sc. and B.L. The number of students in 1935-36 was 2350.

Ripon College

The College grew out of the Bangabasi School which was founded in 1885. The College was formally affiliated in 1887. The administrative control of the Institution is entirely in the hands of a Governing Body of 12 members of which the Principal is the Secretary. The financial control is vested in the Governing Body subject only to the approval of its Trustees. The college is now

Bangabasi College

affiliated to the standards of Intermediate Arts, Science, B.A. and B.Sc. The numerical strength of students is about 2,000.

The College was originally founded in 1865 as the Cathedral Mission College at 22 Mirzapore Street. It was refounded in 1899 under the name of Church Missionary Society's College. The College moved to its present premises at 33 Amherst Street in 1908. It was raised to the B.A. standard and the present name adopted in 1914. But the College is still known in the Student circle under its old name C. M. S. College.

The Institution was established under the direction of the Loreto Sisters with the object of imparting to Catholic youths a sound religious and moral training combined with instruction in every branch of secular knowledge suited to their position. The Institution includes four departments : a College Department, Teachers' Training Department, School and Kindergarten Department, conducted according to the principles laid down by the National Froebel Union for Kindergarten teachers. The College Department is affiliated to the Calcutta University up to the standards of I.A., L. T. and B.A.

The College was started in 1874 by the local public at the instance of the authorities of the South Suburban School. The College was however affiliated for the first time as late as 1915 as it had to get over certain difficulties put in its way by the Government.

The College was first started with name of South Suburban College. In July 1924 after the death of Sir Asutosh Mukherji, its Founder-President, the College was named Asutosh College in honour of his memory. The College is affiliated up to the standards of I.A., I.Sc., B.A., and B.Sc. A women's Department was started in 1932. The numerical strength of students on the 31st August, 1937 was 1,230 in the Men's Department and 247 in the Women's Department, the total strength being 1,477. The College has thus grown to be a premier Institution in Calcutta.

The Institution was founded by General Claude Martin of the Honourable East India Company. The General was born in France in 1735 and came to India in the French Service in 1752. He was appointed Ensign in the Service of the East India Company in 1763, became Major-General in 1795 and died at Lucknow in 1800. The school was opened in 1836. It was formerly open only to European and Anglo-Indian students but since 1935 it has been open to all students. It is now affiliated up to the Intermediate standard in Arts and Science.

La Martiniere

As early as 1881 the Government of Bengal thought of establishing a second grade College for the benefit of the Mahomedan community. In 1884 Intermediate classes were started in Calcutta Madrasah but in 1888 these classes were amalgamated with the classes in the Presidency College. Renewed efforts were made in 1923 to establish a separate college for the Mahomedan students and so the College was formally opened in 1926 and it was affiliated to the Calcutta University up to the standards of Intermediate Arts and Science, and B.A. The number of students in the College in 1935-36 was 178.

Islamia College

The College is one of the oldest institutions in the city. It was established about 82 years ago and was then known as St. Xavier's Day School. In the year 1871 the name was changed to St. Joseph's Boarding and Day School. The College section of the Institution is now affiliated up to the standard of Intermediate Arts and Science.

St. Joseph's
College

The Victoria Institution was founded as a School in 1871 by Rev. Keshab Chandra Sen of the Brahmo Samaj under the auspices of the Indian Reform Association of which he was the President. The aim of the founder was to organise "a scheme of education specially adopted to the requirements of the female mind and calculated to fit woman for her position in Society." The Institution got

Victoria
Institution

its first affiliation up to the standard of Intermediate Arts in 1932 and in 1935 B.A. classes have been opened to meet the growing need of college education for women.

The College was opened on the 1st July 1908 by the Government of Bengal to train teachers of secondary schools as well as inspecting officers of the province. The College is affiliated to the Calcutta University up to the Bachelor of Teaching (B. T.) standard and prepares for the B. T. Degree. L. T. classes were also formerly held in the College but they have been discontinued in 1926-27 as since then large number of B. T. candidates have been available.

The David Hare
Training College

ed to the Calcutta University up to the Bachelor of Teaching (B. T.) standard and prepares for the B. T. Degree. L. T. classes were also formerly held in the College but they have been discontinued in 1926-27 as since then large number of B. T. candidates have been available.

SUBURBAN COLLEGES

The Serampore College was founded in 1813 under the patronage of the Marquis of Hastings, the then Governor-General of India by the Revs. Dr. Carey, Marshman and William Ward. The object of the college was the instruction of Indian youths, both Christian and non-Christian, in literature and science, and the training of selected Indian and Anglo-Indian youngmen for the work of the Christian mission. In 1821 the College received donation from King Frederick VI of Denmark of certain premises to the north-west of the College building and this work of liberality was followed in 1827 by the grant of a Royal Charter, giving perpetuity to the institution and its endowments and empowering it to grant Degrees. When Serampore was ceded to the East India Company in 1845 this charter was confirmed at the special request of the Danish sovereign and a special clause was inserted in the treaty providing that "the rights and immunities granted to the Serampore College shall not be interefered with." In 1856 the College was placed under the general direction of the Baptist Missionary Society. In 1857 when the Calcutta University was founded the College was affiliated to the University. According to a desire expressed at a conference of the Protestant Missions in India, twenty years later, the College

Serampore
College

was reorganised later on, on the lines planned by its founders and it made provision for imparting instruction in Theology of a standard equal to that obtainable in Europe and America. The College is affiliated to the standards of Intermediate Arts and Science, and B.A. and B.Sc.

The College was founded in 1922 by Babu Suranjan Dutt in pursuance of a desire of his father, late Rai Narasinha Dutt Bahadur in order to remove a long-felt want of the citizens of Howrah. The College is situated in a building and a vast compound which had been left to the sole trust of Babu Suranjan Dutt, by the late Mr. I. R. Belilios. The College is affiliated up to the Intermediate standard in Arts and Science.

**Narasinha Dutt
College,
Howrah**

Babu Jaykissen Mukherji, the Zemindar of Uttarpara and one of the pioneers of English education in Bengal was instrumental in moving the Government as early as 1846 to found a School at Uttarpara for which he and his brother Babu Rajkissen Mukherji undertook to make an annual endowment of Rs. 1,200/-. He had the desire to raise the school ultimately to the standard of a first grade College. The College was finally opened in 1887. The school continued to be maintained by Government aid. But since 1897 the College had to be maintained entirely by endowments. In 1914 Raja Pearymohan Mukherji made a permanent endowment for the upkeep of the College. The College is now affiliated up to the Intermediate standard in Arts and Science.

**Uttarpara College
Uttarpara,
(District, Hughli)**

Chandernagore is about 30 miles from Calcutta and is situated on the same river as Calcutta. The Dupleix College at Chandernagore was formerly known as "St. Mary's Institution" which was founded in the year 1862. The Institution obtained the privilege of sending up candidates to the F. A. Examination of the Calcutta University in 1891. The classes were abolished in 1908 and reopen-

**Dupleix College
Chandernagore**

ed in July 1931 when it was duly affiliated to the Calcutta University up to the standards of Intermediate Science and Arts.

The College is situated at Chinsurah at a distance of 35 miles from Calcutta. The Institution was originally founded in 1836 and was originally supported from the funds bequeathed by Muhammad Mohsin, a wealthy Mahomedan gentleman who died without heirs in 1812. His large property yielding an annual income of Rs. 45,000 was left to Mahomedan Trustees "for the service of God." Owing to the misappropriation of the funds Government assumed the office of Trustees. The right of assumption was opposed by the original Trustees but upheld by the Courts. During the period of litigation the annual income had accumulated forming a surplus sum of Rs. 8,61,100. This money was devoted to the foundation and endowment of the Hughli College. The Mohsin endowment was later on diverted by the Government solely for the purpose of Mahomedan education in Bengal and the College became entirely a Government managed institution since 1873. The College is now affiliated up to the standards of Intermediate Science and Arts and B.A. and B.Sc.

APPENDIX

EDUCATIONAL INSTITUTIONS AND SCHOLARS IN BENGAL FOR THE YEAR 1933-34

Institutions				Scholars	
(1933)—(1934)				(1933)—(1934)	
I. RECOGNISED INSTITUTIONS					
A. FOR MALES					
Universities	—	2 ...	2 ...	1,857 ...	2,181
Colleges	—	45 ...	45 ...	20,359 ...	22,427
Professional Colleges	—	14 ...	14 ...	5,040 ...	5,129
High Schools	—	1,122 ...	1,152 ...	269,309 ...	273,819
Middle Schools	—	1,864 ...	1,871 ...	161,699 ...	161,294
Primary Schools	—	44,643 ...	45,442 ...	1,725,385 ...	1,790,549
Special Schools	—	2,819 ...	2,731 ..	119,103 ...	116,820
		<u>50,509</u>	<u>51,257</u>	<u>2,302,752</u>	<u>2,372,219</u>
B. FOR FEMALES					
Colleges	—	6 ...	6 ...	508 ...	596
Professional Colleges	—	3 ...	3 ...	53 ...	57
High Schools	—	64 ...	69 ...	16,285 ...	17,950
Middle Schools	—	71 ...	78 ...	8,882 ...	9,997
Primary Schools	—	18,076 ...	18,878 ...	466,745 ...	495,893
Special Schools	—	44 ...	47 ...	2,162 ...	2,829
		<u>18,264</u>	<u>19,081</u>	<u>494,635</u>	<u>527,322</u>
II. UNRECOGNISED INSTITUTIONS					
A. FOR MALES	—	1,243 ...	1,207 ...	54,327 ...	52,711
B. FOR FEMALES	—	311 ...	381 ...	11,377 ...	14,460
		<u>1,554</u>	<u>1,588</u>	<u>65,704</u>	<u>67,171</u>
Grand Total	—	<u><u>70,327</u></u>	<u><u>71,926</u></u>	<u><u>2,863,091</u></u>	<u><u>2,966,712</u></u>

In the previous tables the Colleges include Arts and Science Colleges, the Law Colleges, the Colleges of Education, Engineering, Medicine, Agriculture, Commerce, Forestry, Veterinary Science and also Intermediate and second grade colleges.

The Unrecognised Institutions include :

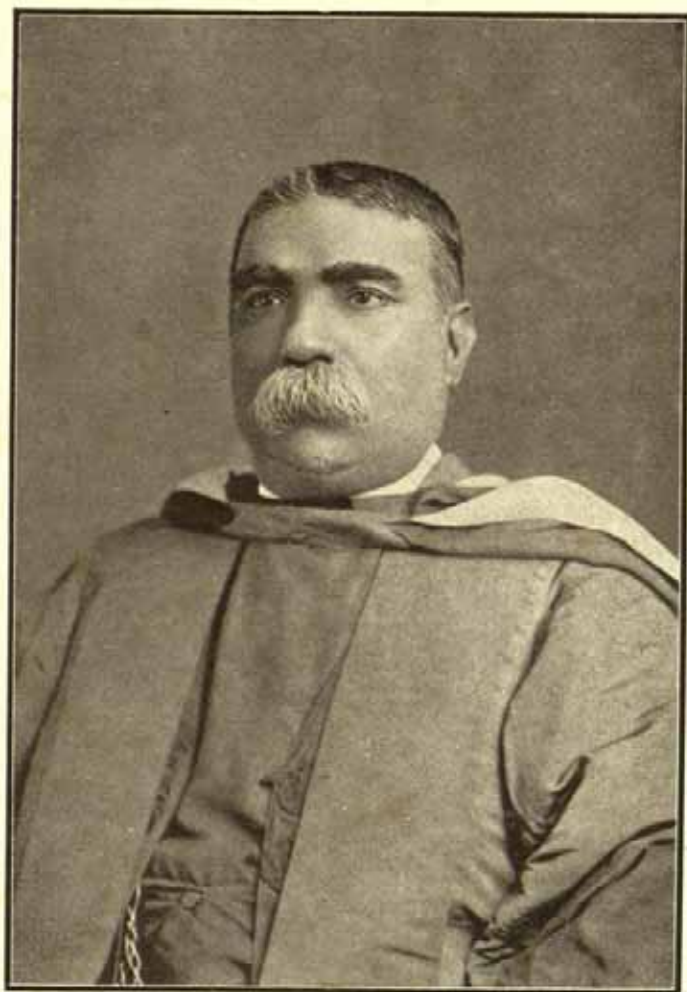
1. Some *maktabs*, 37 for boys and 10 for girls in which 946 boys and 255 girls were receiving education.
2. Mulla and Koran Schools, 195 for boys and 127 for girls,—the number of students being 5,687 boys and 3,410 girls.
3. Pathsalas—68 for boys, the number of students being 1,513.

The Special Schools which are recognised by the Government include :

1. *Maktabs*—257 in all in which 6,548 boys and girls were receiving instruction.
2. *Tols*—600 for boys and 1 for girls—the number of students being 9,786 boys and 37 girls.

The Primary Schools, recognised by the Government include :

1. *Maktabs*—16,976 for boys and 9,463 for girls—the number of students being 640,295 boys and 283,721 girls.
 2. *Tols*—173, the number of students being 2,990.
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SIR ASUTOSH MOOKERJI

CHAPTER VI

THE UNIVERSITY OF CALCUTTA

The University of Calcutta was founded, along with the Universities of Bombay and Madras, by an Act of Incorporation (Act No. 11 of 1857), passed on the 24th January, 1857. At its inception, the University adopted the form, government and regulations of London University. The function of the University was, as defined in the preamble of this Act, was to ascertain, by means of examination, the persons who have required proficiency in different branches of Literature, Science and Arts, and to reward them by academical degrees, as evidence of their respective attainments and marks of honour. The Body Politic and Corporate of the University then consisted of the Governor-General of India as Chancellor, one nominated Vice-Chancellor, the *ex-officio* Fellows (including, among others, the Lieutenant Governors of Bengal and the North-Western Provinces) and Ordinary Fellows, nominated by the Chancellor, and appointed for life, the whole number of Fellows, exclusive of the Chancellor and the Vice-Chancellor, being not less than thirty. The Executive Government of the University was, as usual, vested in a Syndicate, consisting of the Vice-Chancellor and ten representatives of the Faculties, which were four in number, *viz.*, the Faculty of Arts, the Faculty of Law, the Faculty of Medicine, and the Faculty of Engineering.

The Registrar was the only officer appointed by the Senate for the administration of the office. In 1885, the post of a whole-time Assistant Registrar was created for helping the Registrar in office work.

The Degrees which the University was authorised to confer, after examination, comprised those of the Bachelor of Arts, Master of Arts, Bachelor of Law, Licentiate of Medicine, Doctor of Medicine and Master of Civil Engineering. As a matter of fact, the examinations which were held for the first time were the Entrance Examination, Bachelor of Arts Examination, Bachelor of Law Examination and the 1st Examination of the Licentiate of Medicine and Surgery, with Honours Examination in Law. Three years later following the creation of the University, a Supplementary Act (known as Act No. XLVII of 1860) was passed, by which the University was authorised to confer, in addition to those already provided for, such degrees and to grant such Diplomas or Licenses in respect of Degrees as the Body Corporate of the University might appoint by any bye-laws or regulations, subject to the approval of the Governor-General in Council. As a result of this Act, the First Examination in Arts, the License in Law Examination and the License in Civil Engineering Examination were instituted in 1861, —the first to test the knowledge of students at an intermediate stage between the Entrance and the B.A. Examinations, and the second and the last to qualify persons for the legal and engineering professions without requiring them to undergo any Degree Examinations.

The Degrees
of the
University

The want of a permanent habitation for the University had been long felt, and its work had, until 1873, been carried on in rented houses. In 1872, the Government of India came to its rescue and helped it with a building, constructed at a cost of Rs. 4,34,697 which was taken possession of by the University early in 1873. This building, which is known as the *Senate House*, not only formed the nucleus of the residential properties of the University, but also, for a good many years, housed its offices, meetings, and Convocation, and served the purposes of an Examination Hall. In later years, with the development of the University, an extension of building accommodation had, from time to time, to be made, with the result that the University Buildings now include several commodious structures, such as, the *Darbhangra Library Building* (for the University

University
Buildings

Library, Law College together with its Library, University Offices, as also for examination purposes,—for which its top floor accommodates above 700 candidates), the *Hardinge Hostel* (for the residence of the students of the University Law College), the *Asutosh Building* (for Post-Graduate classes in Arts and Post-Graduate offices), and the *two Science College Buildings*—one on the Upper Circular Road and the other at Ballygunge (for Post-Graduate classes in Science, with concomitant Laboratories and Museums), the last-named building being the gift of that noble son of Bengal—Sir Taraknath Palit—whose princely donations have helped the University to establish the College of Science and Technology. Towards the construction of the Darbhanga Building, the University received substantial help from the Hon'ble Sir Rameswar Singh, Maharaja of Darbhanga, who contributed Rs. 2,50,000 for the purpose.

By an Act of 1875, the University was empowered to confer the Degree of Doctor in the Faculty of Law upon any person on the ground of his eminent position and attainments, without requiring him to undergo any examination; and the first Degree of D.L. was conferred, *honoris causa*, on His late Majesty the King-Emperor Edward VII (then H. R. H. the Prince of Wales), at a special Convocation held on the 3rd January, 1875, on the occasion of his visit to India. Since the amendment of this Act by an Additional Act in 1884 and the passing of Act No. VIII of 1904, the University has been given the privilege of conferring Honorary Degrees in other Faculties as well, which, under this new Act, include the Faculty of Science also; and among many distinguished persons who have since been the recipients of these distinctions from the University may be mentioned the names of scions of two Royal houses of Europe, viz., H. R. H. George Frederick Earnest Albert, Prince of Wales, (His Majesty the late King-Emperor George V) H. I. R. H. the Crown Prince of the German Empire and of Prussia, and H.R.H. Edward Albert, the late Prince of Wales, on whom the University conferred, *honoris causa*, the Degree of Doctor in the Faculty of Law in 1906, 1911, and 1921, respectively, and those of many great men of different countries and nationalities, such as Dr. Monier Williams,

Honorary Degrees

Dr. Mahendralal Sircar, Sir Andrew Fraser, Sir Asutosh Mookerjee, Sir Praphullachandra Ray, Sir Jagadischandra Bose, Prof. Hermann Oldenberg, Sir Taraknath Palit, Dr. Paul Vinogradoff, Dr. Hermann Jacobi, Sir Rashbehary Ghose, Dr. Rabindranath Tagore, Dr. Sylvain Levi, Lord Reading, Lord Ronaldshay, Prof. A. A. Macdonell and Prof. C. V. Raman, whose eminent position and attainments in the realms of Literature, Arts, Science, Law, Medicine and Engineering, have earned for them the Honorary Degrees of Ph.D., D.Litt., D.Sc., M.D. and D.L.

The Universities of the Punjab and Allahabad having been established in 1882 and 1887, respectively, the Calcutta University lost its hold upon the provinces falling within
 Jurisdiction their territorial jurisdiction. Gradually, in later years, with the establishment of several other Universities, specially the Universities of Patna, Dacca, and Rangoon, which were founded in 1917, 1920, and 1921, respectively, and which once formed an integral part of this University, it has been bereft of its dominion in other provinces also. Although the Act of 1904 fixed for the Calcutta University, and that for the first time, its territorial jurisdiction as lying within the provinces of Bengal, Bihar, Orissa, Assam, and Burma, its present limit has since undergone certain changes, with the result that the University now holds sway only over Bengal (excluding the municipal area of the town of Dacca) and Assam, with sixty-two Colleges and over one thousand schools within them.

As a result of investigation by a Commission, appointed in January, 1902, at the instance of the Governor-General of India in Council, an Act (Act No. III of 1904),
 The Commission amending the Law relating to the Universities of 1904 in British India was passed by the Governor-General of India in Council, and it came into force on the 1st. September, 1904. This Act was designed to give effect to the recommendations of the Commission for the re-organisation of the government of the Indian Universities, their assumption of teaching functions, the maintenance of lecture rooms, libraries, museums, labora-

tories and workshops for the promotion of teaching and research, the institution of University Professorships, Readerships, and Lecturerships, the introduction of a modified system of examination under different Faculties, as also the system of awarding Doctorate Degrees on theses, and more effective supervision by the Universities over the Colleges, as well as more exacting conditions of affiliation. The scope and functions of the Universities thus underwent vital changes, they being transformed from mere examining Bodies to teaching and research organisations. The Calcutta University is still governed mainly by the constitution framed under this Act. Among other changes, contemplated by the new Act, the provisions for the appointment of University Professors and Lecturers for Post-Graduate Teaching and that of University Readers for the benefit of research students deserve special mention, inasmuch as mainly by this arrangement the University has been given the status of a teaching and research organisation. The question of affiliation of Colleges and supervision of residence of College students together with the question of recognition of schools has been left to the control of the University, with the reservation of final sanction in respect of affiliation of Colleges by Government.

The changes introduced in the examinations and curricula of studies for them are also worthy to be mentioned. The Entrance Examination of former times has been replaced by the Matriculation Examination, the F.A., B.A. and M.A. Examinations have each been bifurcated into two, namely, the I.A. and I.Sc., the B.A. and B.Sc. (with Honours) and the M.A. and M.Sc. Examinations; two examinations in teaching, *viz.*, the L.T. and the B.T. Examinations have been introduced; the L.M.S. Examination and the next higher Examination for the M.B. Degree—which was also provided for at a later stage—were combined together into the M.B. Examination in three parts—the Preliminary Scientific, 1st and Final M.B. Examinations (which have recently undergone another change by the institution of five examinations for the M.B. Degree, *viz.*, the Preliminary Scientific, First, Second, Third and Final M.B. Examinations); and, in place of the License in, and Master of

Civil Engineering, I.E. and B.E., have been introduced. Provision has been made for the substitution of a part of the M.A. and M.Sc. Examinations by research work, as also for the admission of persons to the Doctorate Degrees under different Faculties on the merits of theses submitted by them. Among other new examinations prescribed under the new Act, or introduced subsequently, may be mentioned the B. Com. Examination, D.P.H. Examination, Examination, the Diploma in Spoken English, Master of Law Examination, Master of Surgery Examination and Master of Obsterics Examination. The Examination for the License in Law was discontinued in 1875, and the Bachelor of Law Examination, which was at first bifurcated into two parts, has subsequently been divided into three parts, *viz.*, the Preliminary, the Intermediate and the Final Examinations in Law, and the eligibility of graduates under different Faculties for admission to the Examination has been recognised. In the syllabuses of studies Vernacular has been given a prominent place and Indian Vernaculars have been prescribed for the M.A. Examination. The subjects of Elementary Mechanics, Elementary Hygiene, Commercial Geography, and Business Method and Correspondence have been included in the curriculum of studies for the Matriculation Examination, Civics, Commercial Geography and Commercial Arithmetic Elements of Book-keeping and Anthropology for the I.A. Examination, Linguistics for the B.A. Examination, and Anthropology and Experimental Psychology for the Bachelor and Master Degree Examinations. Recently, a change in the Regulations for the Matriculation Examination has been made by the University, making provision for the teaching in Vernacular, and for vocational and technical education and abolishing the age-limit for the Examination.

The problem of residence and the problem of health of students go hand in hand. In order to consider the question of health of student their physical education and the organisation of games and other forms of recreation, a Committee called the Students' Welfare Committee was appointed in 1925. The introduction

**The Students
Welfare**

of compulsory Physical Education in Schools and Colleges is also engaging the attention of the University, and a scheme has been formulated for the purpose, which is under the consideration of Government.

Besides caring for the interests of its internal students, the University is also mindful of the interests of its external students, and with that end in view it has established a Bureau, at the instance of the Government under the name of the Students' Information Bureau, which is constituted mainly of representatives of the University and is managed by it. The function of the Bureau is to supply information, advice, and assistance to students wishing to pursue their education abroad, as also supply foreign Universities with information regarding students which will enable them to make proper selection from among those applying for admission.

These resources of the University being very limited, financial assistance from Government is sought from time to time to meet necessary expenses of the various departments of the University.

In 1917, the Government of India appointed a Commission, with Sir Mihcael Sadler as its Chairman, for the examination of the present system of education, specially in reference to Calcutta University. The Commission recommended certain far-reaching and fundamental changes. Two main recommendations of the Commission are the establishment of a Board of Secondary Education, and increased use of the elective principle in the constitution of the University.

University
Commission, 1917

“The recommendations of the Calcutta University Commission have to a great extent determined the lines on which were established in 1920 and the two following years the unitary teaching and residential Universities of Aligarh, Dacca, Delhi, Lucknow, Rangoon, and on which the University of Allahabad and Madras were reorganised in 1921 and 1923 respectively.”

In the field of research, for which the Act of 1904 made ampler provision, the institution of the "Premchand Roychand Research Scholarship" with the princely donation of two lakhs of Rupees, received, in 1866, from Mr. Premchand Roychand of Bombay laid the true foundation of such work. Since then, several other endowments have been made from time to time by philanthropists and public bodies with a view to stimulating research work in different branches of knowledge. In 1908, the Jubilee of the University was celebrated and the Jubilee Research Prize was founded on the occasion with a sum of Rs. 30,000/-, and set apart from the Reserve Fund of the University, for the promotion of research by its Graduates.

In 1909, the New Regulations making provision for Post-Graduate Teaching by the University came into operation; while in 1917 the system of centralisation of Post-Graduate studies in Calcutta was introduced in the name of, and under the control of, the University. Accordingly, a Post-Graduate Department has been set up, its government being vested in two Councils for Arts and Science consisting of all Post-Graduate teachers, with a President and an Executive Committee for each body, the Proceedings of the Councils being subject to confirmation by the Senate. Provision has been made, separately for this Department, for the constitution of Boards of Higher Studies in different subjects for recommending Examiners and text-books for Post-Graduate Examinations.

The University has a Press entirely for its own work. The Press has afforded ample scope for the development of research work by bringing out at regular intervals a fairly large number of serial publications like the Journal of the Department of Letters, the Journal of the Department of Science etc. It publishes also a number of journals and bulletins like the Calcutta Review, Chemical Journal, Physical Journal, Mathematical Bulletin, Psychological Journal, Geological Journal etc. The number of books published



SIR RASHBEHARY GHOSH

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so far excluding the text books for the Matriculation, Intermediate and B.A. Examinations is over 300. If we have to estimate the annual output of the University Press by the number of pages, over 50,000 pages are annually printed by it and these include the various reports, the minutes, the University Calendar, etc. About 20,000 impressions of each text book are made. The Press is at present housed in a big shed between the Senate House and the Darbhanga Library building. As this accommodation is quite insufficient for such a big Press the University has been lately thinking of providing it with a more commodious building elsewhere in the neighbourhood of the Senate House.

The nucleus of the University Library was formed in 1874 out of a donation of Rs. 5,000 made in 1869 by Babu Jaykissen Mookerjee of Uttarpara. In 1908 the Hon'ble Sir Rameswar Singh K. C. I. E., Maharaja Bahadur of Darbhanga made over to the University a sum of Rs. 25,000 for the construction of building in which the Library might be located. The University Library was located in this building till 1935 when it was amalgamated with the Post-graduate Lending Library and a Central Library was thus formed. The University Library now consists of : (a) A Central Library for the use of teachers and students, Registered Graduates, Fellows etc. (b) Special collections *viz.*, the Pischel Collection, Dunn Collection, S. C. Ray Collection, Das-Gupta Collection, Bagchi Collection, Chinese and Japanese Collection, Bengali Manuscripts Collection, Sanskrit and Tibetan Manuscripts Collection etc. (c) Departmental Libraries in Scientific subjects attached to the various Departments. All these collections contain in all 165,000 volumes and pamphlets. The new Library Stack Room of the Central Library contains about 106,000 volumes and the Library Hall contains provision for more than 300 seats arranged in three parallel rows.

A number of frescoe paintings by the artists of the Bengal School decorates the walls of the Library Hall. The frescoes represent a continuous series depicting various aspects of the Indian national life since the dawn of history till the present day and records the most epoch making events of

Wall paintings
in the Library
Hall

the history of the Indian nation with special reference to Bengal. The series of paintings close with representations of an array of personalities that played important parts in different spheres of modern Bengali life, thought and culture and contributed to their renaissance.

For the promotion of research and higher studies the University has founded a number of Professorships: Tagore Law Professorship (founded in 1908); George V Professorship of Mental and Moral Science (founded in 1911-12); Hardinge Professorship of Higher Mathematics (founded in 1911-12); Carmichael Professorship of Ancient Indian History and Culture (founded in 1912); Professorship of Comparative Philosophy (founded in 1913); University Professorship of English (founded in 1914); University Professorship of Botany (founded in 1918); University Professorship of International Law (founded in 1920); and University Professorship of Zoology (founded in 1920). The Tagore Law Professorship is maintained out of the endowment made by Mr. Prasannakumar Tagore, formerly a Fellow of the University; the George V. Professorship of Mental and Moral Science and the Hardinge Professorship of Higher Mathematics were established in commemoration of the visit of their Imperial Majesties King Emperor George V and Queen Empress Mary; the Minto Professorship of Economics was founded on the occasion of the Jubilee of the University. A Government grant of Rs. 37,000 is received for the maintenance of three of these Chairs. The other Chairs are being maintained out of University funds. To perpetuate the memory of Sir Asutosh Mookerji three new Professorships, *viz.*, of Sanskrit, Mediaeval Indian History and Islamic Studies were created in 1927.

During the years 1912 and 1913 princely endowments were made by the two great sons of Bengal, Sir Taraknath Palit and Sir Rashbehary Ghosh for organising the study of the various sciences in the University and also for the creation of a number of Professorships. The number of these Professorships is eight and they are : Sir Tara-

The University Professorships

The Endowed Professorships

nath Palit Professorships of Physics and Chemistry created in 1912 and Kanath Palit Professorships of Physics and Chemistry created in 1912 and Sir Rashbehary Ghosh Professorships of Applied Mathematics, Physics, Applied Physics, Chemistry, Applied Chemistry and Botany, all of which were created in 1913. In 1921 the University was endowed with a fund of Rs. 5,50,000 from the estate of the late Kumar Guruprasad Singh of Khaira, and out of the annual income of that fund five University Professorships were created in Fine Arts, Indian Linguistics and Phonetics, Physics, Chemistry and Agriculture. The Professorship of Fine Arts is called the Rani Bageswari Professorship whereas the remaining four Professorships are named after Kumar Guruprasad Singh.

The Regulations of the University provide for the appointment of *University Readers* to deliver lectures, mainly for the benefit of

**Readerships and
Fellowships**

Graduates engaged in research work. A series of public lectures on special subjects are also arranged by the University for the promotion of original investigation and research. These lectures are known as University Extension Lectures. For the advancement of learning there is also a number of Fellowships and Lectureships. The *Ghose Travelling Fellowships* were founded in 1921 for the purpose of helping scholars to investigate educational methods abroad or to undertake research in any special branch of learning—the cost being met out of an endowment of two and a half lakhs of rupees made by Sir Rashbehary Ghose. The *Ramtanu Lahiri Research Fellowship* was established in 1913 for investigation in the History of the Bengali Language and Literature from ancient times and for the delivery of a course of public lectures on the subject. The *Sreegopal Basu-Mallik Fellowship* was originally established for the purpose of giving tutorial assistance to students of Sanskrit generally and of Vedanta Philosophy in particular. The scheme was modified in 1925, and the Fellow is accordingly now required to deliver a course of lectures on Vedanta Philosophy, dealing specially with the place occupied by Vedanta in the philosophical system of the civilized world and with its merits as compared with Western schools of thought. Like the above Fellowships, there

are three important *Lectureships*, viz., the Stephanos Nirmalendu Ghosh Lectureship, the Kamala Lectureship and the Adharchandra Mukherjee Lectureship, established under the auspices of the University, which aim at the diffusion of higher thought and knowledge among the public. The *Stephanos Nirmalendu Ghosh Lectureship* was founded in 1919, and maintained out of the income of an endowment of one lakh of rupees made over to the University by Rai G. C. Ghosh Bahadur, for the institution, in memory of his son, of a course of lectures on Comparative Religion once in every three years. With a view to establishing the *Kamala Lectureship* in memory of his eldest daughter, Sir Asutosh Mookerjee placed at the disposal of the University in 1924, Government securities for Rupees forty thousand for the institution of a course of Lectures, either in Bengali or English, on some aspects of Indian Life and Thought from a comparative standpoint. The *Adharchandra Mukherjee Lectureship* has been instituted with an endowment of Rs. 9,000 made by the late Prof. Adharchandra Mukherjee, M.A., B.L., for delivery of a course of two Lectures annually by a distinguished scholar on a selected subject connected with Letters or Science for the promotion of Post-Graduate Teaching. In addition to these, are three other *Lectureships*, established for the promotion of higher studies in Hindi and Oriya. The Hindi Lectureship has been founded out of an endowment of Rs. 15,000 made by Mr. G. D. Birla, and the Oriya Lectureships have their origin in two gifts made by Maharaja Sir Biramitrodaya Singh Deo of Sonapur, one of the last lectureships being established out of his endowment of Rs. 33,000 in memory of Sir Asutosh Mookerjee.

There is also provision for State and Private Scholarships, under the auspices of this University, for study outside India. The State Scholarships, tenable in England, originally founded by the Government of India, were provincialised in 1921, when the Bengal Government established two such scholarships of £300 a year each with the usual war bonus for the purpose of general study tenable for three years in the United Kingdom, to be awarded every other

The Scholarships

year to the best Hindu and Mahomedan candidates from the Universities of Bengal. The Guruprasanna Ghosh Scholarship and Sir Taraknath Palit Scholarship are the most important private scholarships, which are maintained out of the income of the endowments made by Mr. Guruprasanna Ghosh and Sir Taraknath Palit. The *Guruprasanna Ghosh Scholarship* aims at the promotion of real learning amongst young men who must be pure natives of Bengal, preferably Hindus, so that they may become specialists in some subject of Arts or Science, or increase their knowledge of Agriculture and of the Industries of Europe and America, or the East, the object of the Founder being to afford opportunities to the sons of artisans and mechanics, following such industry in India, to specialise in their arts. Three scholarships, of the annual value of Rs. 1,000 each, if tenable in Japan, and Rs. 2,000, if tenable in Europe or America, for three years, are maintained out of this endowment. The *Sir Taraknath Palit Scholarship* has been founded with a sum of Rs. 1,00,000, set apart out of the Trust estate of Sir Taraknath Palit, for maintaining a scholarship for advanced students in Science to carry on research or investigation abroad. For the purpose of awarding scholarships, prizes and medals on the results of its various examinations, the University maintains 150 endowments, most of which have been made by outsiders and outside bodies.

On the proposal of the Executive Committee of the Council of Post-Graduate Teaching in Arts, the University decided to establish a Fine Arts Gallery and Museum in connection with the Post-Graduate studies in Ancient Indian History and Culture. The Museum has been named Asutosh Museum of Fine Arts after the late Sir Asutosh Mookerji who was the first to introduce the study of Ancient Indian History as an independent subject in the University curriculum of Post-Graduate Teaching. The Museum is now located in the West Hall of the Senate House where relics of Indian Art already collected have been arranged under the direction of a competent Curator. The main object of the Museum is to collect and preserve specimens representing dif-

Asutosh
Museum of
Fine Arts

ferent phases of Indian Art, special emphasis being given to Bengal Art.

Under the auspices of the Department of Anthropology the nucleus of another Museum has been started. It is mainly meant for under-graduate teaching in the Anthropology Department. It is now situated in the Palit House, Ballygunge and contains casts of the remnants of prehistoric men, a complete collection of objects representing the material culture of the Korkus from Central Provinces and besides diverse objects representing the culture of some tribes of Chotanagpur like the Hos and the Santals and of Assam like the Nagas and the Kukis.

There is also a Commercial Museum in the University which is now located in a spacious Hall on the top floor of the Asutosh Building. It is attached to the Department of Commerce and Economics and contains specimens of the commercial products of Bengal and neighbouring provinces.

The University started from July 1935 a Teachers' Training Department to promote the systematic study of the science and art of education to provide opportunities for the training of teachers and to arouse among the teaching profession in general a deeper interest in educational work. Arrangements have at present been made for two short training courses and a vacation course every year. The courses of study include : (i) General Principles of Education, (2) Educational Psychology with practical work, (3) Education in Bengal, its history, administration and organisation, (4) Methods of teaching special school subjects. Under the auspices of this Department a special course for geography also has been started and it is open only to *bona fide* teachers. These two courses, it should be admitted, have been affording great facilities to the teachers of the schools in the Province, who are now in a position to get an expert training in the methods of teaching within

a short period of time. The huge number of admissions to every one of these courses testifies to the great success of the scheme.

The University has organised the teaching of such modern languages as German, French, Portuguese, Italian, Japanese, etc.

<p>Modern Languages and Undergraduate</p>	<p>It has also organised for the first time the teaching of Commerce up to the standards of B. Com. and M. Com. It has besides opened classes for the undergraduate students of such subjects as Anthropology, Experimental Psychology, Linguistics, Zoology etc., for which proper facilities are not yet being afforded either in the Government or Private Colleges.</p>
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In 1921 Babu Prankrista Chatterji transferred to the University of Calcutta a High English School called the Basanti-Bijay High English School which he had been maintaining at a place called Ikhra near Ranee-gunge with additional property with the total valuation of about Rs. 1,45,000. In a letter written to Sir Asutosh Mookerji, the then Vice-Chancellor of the University he expressed his desire "that the University may establish a University School of Mines at Ikhra" to open up facilities for instruction in Mining in Bengal. He further made a capitalised grant of Rs. 30,000, fetching an annual income of Rs. 1,800, for the upkeep of the Institution. The Syndicate of the University accepted the generous offer in 1921 and appointed a Committee of management.

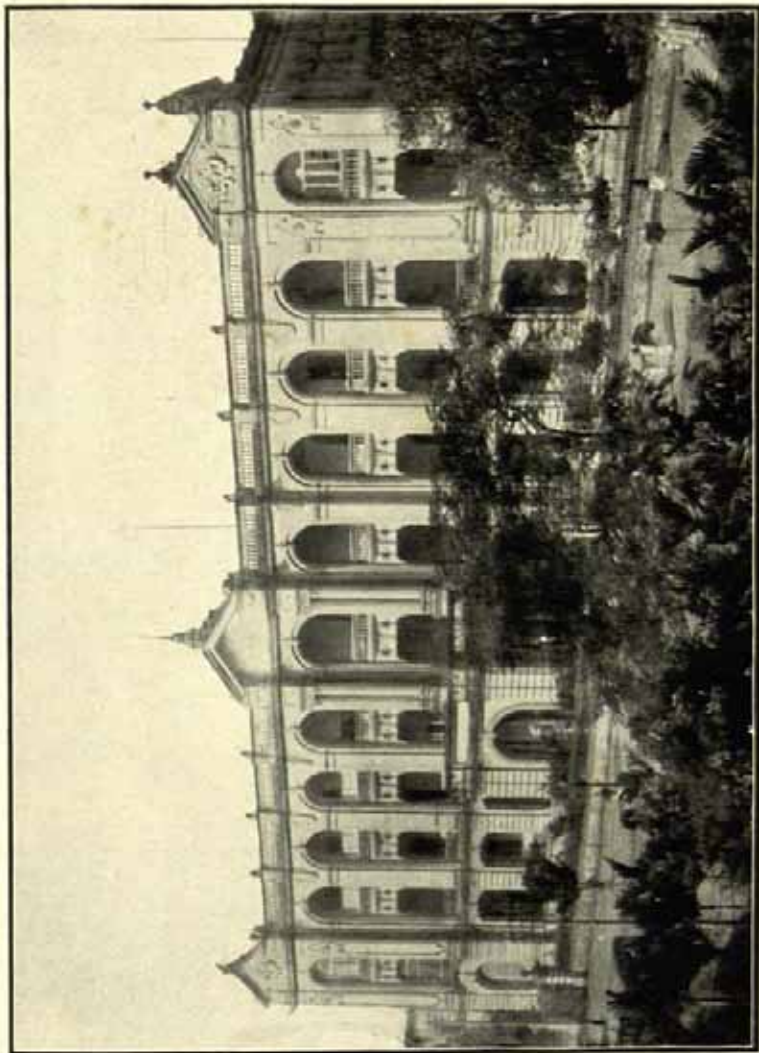
<p>The University College of Law</p>	<p>In 1908 Sir Asutosh Mookerji, the then Vice-Chancellor of the University pointed out the deplorable state of the teaching of Law in the Province and suggested that the most urgent and radical reform was needed. He submitted a scheme for the establishment of a Law College which was duly accepted by the Syndicate and Senate of the Calcutta University and approved by the Government. The College was formally affiliated to the University with effect from July 1909. The College was placed under the management of a Governing Body of which the Vice-Chancellor was the <i>ex-officio</i> President.</p>
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The present curriculum for the Bachelor of Law Examination (B.L.) is spread over three years of course called Preliminary, Intermediate and Final. The subjects for the Preliminary Examination are Jurisprudence, Roman Law, Hindu or Buddhist Law and Constitutional Law, those for the Intermediate stage—Mahomedan Law, Law relating to persons, Law relating to property and the Law of contracts and Torts, and subjects for the Final Examination are : Law relating to property, the Principles of equity, the Law of evidence and the general principles of Civil Procedure and Limitation and the Law of Crimes and the General principles of Criminal Procedure. Formerly there was teaching arrangement up to the standard of Master of Law examination but this has been recently discontinued.

The Law College possesses a good Library which contains about 40,000 volumes. The College has a spacious hostel called the Harding Hostel attached to it and it considerably removes the difficulty of residence of a large number of Law students.

The Post-Graduate Arts Department has undertaken teaching and examination in the following subjects : English, Sanskrit, Pali, Comparative, Philology, Arabic, Persian, Indian Vernaculars, Philosophy, Experimental Psychology, History, Ancient Indian History and Culture, Economics, Commerce, Pure Mathematics and Anthropology. The Department of Anthropology is now located in the Palit House at Ballygunj where it has its own Departmental Library, Museum and a well equipped Laboratory. The Department of Experimental Psychology with its Laboratory is situated in the Science College Building at 92 Upper Circular Road. All other Departments are located in the Asutosh Building. Some of these Departments like the Departments of Indian Vernaculars, Sanskrit, Ancient Indian History have their special collection of books and Manuscripts for affording facilities for research to the research students.

The latest number of students in the various Departments of the Post-Graduate Teaching in Arts is 1332. There are besides a



THE COLLEGE OF SCIENCE AND TECHNOLOGY,
CALCUTTA UNIVERSITY

number of research students and fellows who are appointed every year and attached to their respective Professors for carrying on research work in various subjects. The Post-Graduate classes in Arts are mainly held in the Asutosh Building.

The Departments of the Post-Graduate Teaching in Science at present are : Physics, Applied Physics, Chemistry, Applied Chemistry, Applied Mathematics, Botany and Zoology, Physiology and Geology. The University classes in Geology and Physiology are held in the Presidency College; the Departments of Botany and Zoology are housed in one of the Palit Houses in Ballygunj whereas the other Departments are located in the Science College Building at 92 Upper Circular Road. The total number of students in all these Departments at present is 276. There are besides research students and fellows attached to each of these Departments and they carry on research work under the guidance of their respective Professors. Every Department has its own library and laboratory for affording facilities for study and research work.

The
Post-Graduate
Teaching in
Science

THE UNIVERSITY COLLEGE OF SCIENCE AND TECHNOLOGY

The University College of Science and Technology at 92, Upper Circular Road, Calcutta, owes its origin to the munificence of the late Sir Taraknath Palit, who on the 15th of June and the 8th of October, 1912, executed two trust deeds in favour of the University of Calcutta whereby he made over to the University, land and money to the aggregate value of 19 lakhs of Rupees. The Founder stated that as his object was the promotion and diffusion of Scientific and Technical education and the cultivation and advancement of pure and applied science, amongst his countrymen through indigenous agencies; the two chairs which were to be founded by the University in this connection were to be filled by Indians. The management of the Trust was vested in a Govern-

The University
College of
Science

ing Body consisting of the Vice-Chancellor of the Calcutta University, the Director of Public Instruction, Bengal, the Deans of the Faculties of Science and Engineering, four Members of the Senate, the two Professors and four nominees of the Donor.

The University accepted the Trust and undertook to provide from its own funds a sum of Rs. 2½ lakhs for providing suitable laboratories, workshops and other facilities for teaching and research. The two Trusts of Sir Taraknath Palit were followed by a gift of Rs. 10 lakhs by Sir Rash Behary Ghose on the 8th August, 1913. The Founder directed the establishment of four chairs for Chemistry, Physics, applied Mathematics and Botany with special reference to agriculture. The management of the Trust was also on lines similar to those of the Palit Trusts. In December, 1919, Sir Rash Behary Ghose followed up his gift by another of Rs. 12½ lakhs for Technological Studies, and two chairs, one for Applied Chemistry and the other for Applied Physics were founded in this connection. Two more chairs were added to the professoriate of the University by the munificence of Kumar Guru Prasad Sinha of Khaira who contributed 5½ lakhs of rupees, the conditions with regard to which were accepted by the Senate by two resolutions, dated the 3rd of January, 1920 and 3rd June, 1921.

The Foundation Stone was laid by the late Sir Asutosh Mookerjee on the 27th March, 1914, and Post-Graduate classes were started in June, 1916, in the Departments of Physics, Chemistry (including Bio-Chemistry), applied Mathematics and Experimental Psychology. Applied Chemistry and Applied Physics were formulated as alternative courses in Chemistry and Physics in 1920 and in 1924, and were formed into separate departments in 1932 with their independent Boards of Studies.

Sir P. C. Ray, Palit Professor of Chemistry, has been rendering gratuitous service to the University since September, 1922, and his salary from that date till his retirement in 1937 has been funded after his desire for the furtherance of the Department of Chemistry (both General and Applied). The Senate on the 24th August, 1929, adopted the following scheme for the utilisation of the fund created out of the accumulat-

ed salary of the professor: (1) Rs. 5,000 for extension of the Inorganic Chemistry Laboratory of the University College of Science. (2) Rs. 10,000 for equipment of the Inorganic Research Laboratory for the investigation of Rare Earths and for Microcrystals. (3) Rs. 10,000 to be paid to the Indian Chemical Society as contribution to its building fund. The rest was to be funded and out of the interest two Research Fellowships of the value of Rs. 200 p.m. to be created.

The laboratory is divided into two sections, *viz.*, the Teaching and the Research Work. The *Teaching Laboratory* consists of the followings sections: (a) *The Standardising Section*—There are two rooms allotted to the section on the ground floor and the equipments consist of all types of Precision Standards D.C. and A.C. Ammeters, Voltmeters, Wattmeters, Standard Resistances, Inductances, Capacitances, all certified from N.P.L. of Bureau of Standards. A standard A.C. & D.C. Potentiometer supplied by the N.P.L. and Precision Bridges for different purposes are maintained. (b) *High Voltage Laboratory* for which one room on the ground floor has been allotted and the equipment consists of 20 K.V.A. 18,000 volt Transformer provided with electrostatic voltmeter and Schering Bridge. (c) *The Electrical Machine Laboratory* occupies two halls on the ground floor and there is a large number of direct current Motors and Generators, Single and poly-phase Alternators of different cycles and motors of different types, a Duddel Oscillograph and other requisites for experimental work. (d) *The Communication Engineering Section*:—There are two halls, one on the ground floor and the other on the first floor. The equipments include two model Telegraph Stations fitted with all instruments necessary for simplex, duplex and quadruplex working as well as for Baudot Telegraph working. There are two carrier currents telegraph terminal equipments as well as a number of Automatic Telephone Switchboards, Subscriber's Telephone Sets of various types and a complete range of apparatus for all measurements relating to telephone work. There is also the provision for Signal Strength Measuring Sets and Cathode-ray Oscillograph for

the study of atmospheric, Public Address Systems with microphone, amplifier and loudspeaker, Radio-receivers and different types of radio-frequency oscillators. There is also the provision for the teaching of Railway Block Signalling and there is a model interlocking frame as used in railway yard and the necessary equipments for the study of the subject.

In the *Research Section*, the Spectroscopic Laboratory is perhaps the best equipped laboratory in India for the investigation of Molecular Spectra and has spectrographs of high dispersions including one 21-ft concave grating on Paschen mounting. There is a complete equipment for investigations in the Infra-red. In the Technical Laboratory there are provisions for investigating the properties of various natural products of our country. It includes an X-ray Laboratory for studying the structure of jute fibres and a Measurement Laboratory for investigating the properties of Indian Vegetable Oils.

In addition to the provisions for regular teaching and practical work in laboratories for post-graduate students qualifying for the M.Sc. degree, there are research laboratories where students usually after taking the M.Sc. degree, carry on original investigations either in collaboration with or under the direct supervision of the professors. A number of research scholarships and fellowships are awarded annually to deserving and meritorious research workers.

Physics
Laboratories

In the Palit Laboratory of Physics research work is being carried on and facilities for the same are available in the following subjects: (I). Spectroscopy, including Raman effect, and absorption spectra of crystals, solutions and vapours at high and low temperatures, etc. (II). Magnetism, including study of para and Ferro-magnetic properties of substances at different temperatures, Faraday effect etc. (III). Radioactivity, including study of cosmic radiation and study of certain nuclear disintegration.

A wireless research laboratory is being maintained under the supervision of the Ghose Professor of Physics, which is the first in India to start researches in the field of wireless. The main line of work here has been the investigations of the upper ionised regions



SIR TARAKNATH PALIT

of the atmosphere—the Ionosphere, which resulted in the discovery of the D and C layers in the middle and lower atmosphere. Investigations have also been carried during the last few years on the propagation of electromagnetic waves.

In the Khaira professor's laboratory, facilities are available for research work on spectroscopy of X-Rays and diffraction of X-Rays and electrons. The laboratory is equipped with a Seigbahn's low vacuum spectrograph with a rotating plane crystal arrangement and also a high vacuum concave crystal spectrograph. At present, fine structure of primary and secondary absorption edges of substances are under investigation. A complete set of apparatus of the latest design for studying the diffraction of electrons through thin film and vapours has been installed.

The Department of Chemistry consists of general laboratories for beginners as well as research laboratories for the members of the staff and for advanced students. In the

Chemistry Laboratories	<i>Organic Section</i> there are special arrangements for carrying out semi-micro and micro-analysis as well as for spectroscopic investigations.
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The research work in this section consists mainly of the investigation of different types of co-ordination compounds as well as analysis of minerals containing rare elements. In the *physical chemistry section*, facilities are available for research work on the following subjects :

- (a) Cataphoresis (both Macro and Micro), electroosmosis.
- (b) Absolute velocities and Transference numbers of ions by the moving boundary Method.
- (c) Adsorption Indicators.
- (d) On the physicochemical properties of soils.
- (e) Adsorption of electrolytes.
- (f) Spectroscopy in the visible and ultraviolet.
- (g) Colorimetry.
- (h) Photochemical works.
- (i) Electrochemistry.
- (j) Polarimetry.

In this department there are five research laboratories, three laboratories for work on special subjects and two general laboratories for students. Besides, there is a fairly large workshop equipped with a number of machineries and miniature industrial plants. Facilities are provided in the department for a wide variety of work. Researches on coal, photographic plates, fats and oils, vitamins, hormones, organo-metallic compounds, snake venoms, toxins, anti-toxins, fermentative production of various chemicals and on many other related subjects with direct and indirect implications in industry have appeared from this department. Attention is paid also to fundamental research which constitute the bed-rock on which applications must rest.

Applied
Chemistry
Laboratory

There are arrangements for teaching the Post-Graduate courses in Botany and for research work. The Botany laboratory is well-equipped, including apparatus for various types of work including Physiology, Bacteriology, Mycology and Cytology and a small dark room for photography.

The Botany
and Zoology
Laboratories

There is a good herbarium containing specimens from various parts of India and abroad which are being added to. There is a small experimental garden, where experimental work on the physiology of economic plants is being carried out. Instruments for the measurement of the different climatological factors are available.

CHAPTER VII

PROFESSIONAL AND TECHNICAL EDUCATION

MEDICAL EDUCATION

Before the introduction of the Western system of medical education the indigenous system, both Hindu and Islamic, were prevalent in the country. The state of this indigenous medical practice, according to the report of Adam "was so intimately connected with the welfare of the people that it could not be wholly overlooked." Even in modern times the two indigenous systems, the *Ayurveda* and the *Unani* are not at all disregarded. On the otherhand serious attempts have been made in recent years to reorganise them.

Indigenous Systems

Major-General A. Hooton, a former Director-General of the Indian Medical Service, writes "It is certain that 500 years ago both the Hindu and Mahommedan physicians of India must have been greatly superior in many respects to those of Europe. The names of Charaka and Sushruta may fairly be placed beside those of Hippocrates and other famous Greek physicians and in point of time they preceded them. It is a great pleasure to record that the *Ayurveda* dealt with Physiology, Anatomy (including a crude method of dissection), Physical Examinations and Therapeutics, and displayed the most surprising originality and enterprise in the realms of Surgery. The *Ayurveda* was not behind-hand in laying down an Ethical Code for the practice of Medicine and Rules of Nursing in Institutions."

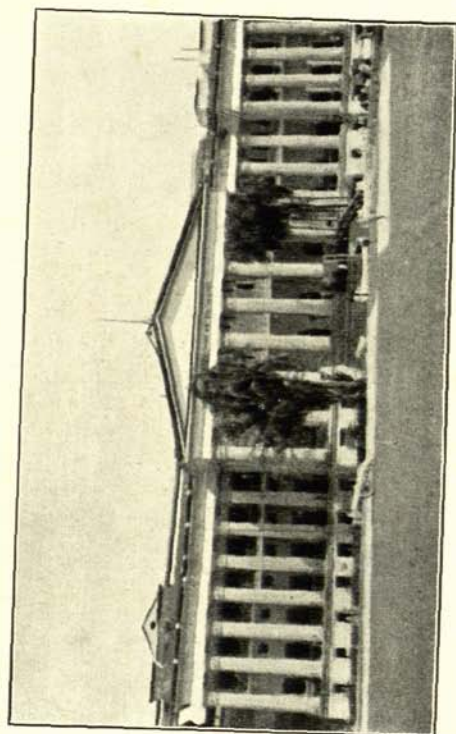
The Western system of medical education was introduced in Bengal towards the beginning of the 19th century. According to the details collected by Rev. J. Long "previous to 1807, from fifty to one hundred native doctors used to attend the hospital to study the practice there and to introduce it among their countrymen." About this time the demand for practitioners trained in the European science was made. In 1822 the Medical Board addressed a memorandum to this effect to the Government of India. The proposal was approved by the Government and a scheme was accordingly drawn up.

Medical Education
before 1826

The School was opened in 1824 and Surgeon Jamieson was appointed its first Superintendent. The course was for three years. During the first year were taught Pharmacy, Materia Medica, Physiology and Anatomy and during the next two-years Medicine and Surgery. On the death of Jamieson in 1823, Surgeon Bretton assumed charge of the newly founded school. The Sanskrit Medical Classes were located at the Calcutta Sanskrit College and the Urdu Classes in the Calcutta Madrassa. Instruction was imparted through the medium of Sanskrit and Urdu language and for this purpose short treatises from English were translated. About the work of the students Dr. Bretton reported in 1826: "The zeal and diligence with which the pupils prosecute their studies even in the least attainable part, i.e. Anatomy, afford a very cheering prospect of their ultimately becoming one of the most useful class of servants in the service of the British Government in India."

Medical Classes
in Sanskrit College
and Calcutta
Madrassa

Dr. John Tytler succeeded Dr. Bretton in 1827 on the latter's death. He carried on the same plan of instruction as initiated by Dr. Bretton and added to the number of vernacular pamphlets or manuals by which the education of the students were conducted. Under his able guidance the students handled bones of the human skeleton without reluctance and in some cases they performed the dissection of the softer parts of animals.



MEDICAL COLLEGE, BENGAL

In 1833 Lord William Bentinck appointed a Committee to revise the whole question of Indian medical education. The Committee acknowledged the merits of the existing Medical institutions but pointed out also a number of serious defects. It further recommended the establishment of thoroughly equipped Medical College. The Government accepted its recommendations, abolished the Native Medical Institution together with the medical classes in the Sanskrit College and at the Calcutta Madrasa. The Medical College was founded in 1835 and its medium of instruction became English. Shortly after this, Pandit Madhusudan Gupta, on the 10th of January 1836 accompanied by four courageous pupils performed dissection on a human body for the first time in India. "This day will ever be marked in the annals of Western Medicine in India when Indians rose superior to the prejudices of their earlier education and thus boldly flung open the gates of modern medical science to their countrymen."

Foundation of the
Medical College

At the suggestion of Mr. James Ronald Martin the surgeon of the Native Hospital in Calcutta, a Fever Hospital and a Municipal Committee were established by the Government. The Committee raised funds and emphasised that a central fever hospital was necessary for Calcutta. The fund was augmented through various other contributions. Babu Moti Lal Seal gave a piece of land and the foundation of the Medical Hospital was soon laid there on the 30th September 1848. This is the oldest hospital attached to the Medical College. Since then through public contributions various other hospitals and buildings have been added.

Foundation of the
Hospitals

In 1842-43 Dr. Mouat, the Secretary of the Council of Education, circulated a minute stating that, on the ground of the expense of supplying Sub-Assistant surgeons to the millions of Bengal it was necessary to have a class trained through the Bengali language, men who would be the only checks on the common vendors of poison: to consist of one hundred persons on scholarships of five Rupees

Medical educa-
tion through
Vernacular
medium

monthly, trained by two professors selected from the passed students: when their studies were completed to be located at their own choice at thannas. The Council of Education cordially agreed with the plan. Ram Kamal Sen, noted for his Oriental Scholarship, proposed in 1844, Rupees 1,000 as a prize for the best translation into Bengali of a treatise on Anatomy, Materia Medica and the treatment of the principal diseases prevalent in India. In his proposal he stated that instruction must be given through the Vernacular, the natives studying through an English medium "have neither time nor disposition nor means to communicate to their countrymen the knowledge they possess."

In 1852 the Government sanctioned the establishment of a Bengali Class for the "Native Doctors at the Medical College" because the demand for these Doctors had considerably increased. This class of Doctors was a great blessing in the villages of Bengal as they afforded medical aid to numbers for low fees. In the last report of the Bengali Class of the Medical College the Principal, Dr. Chevers stated: "160 students remained over from the previous year, 97 were admitted into the Licentiate class and 47 into the Apothecary class, giving a grand total of 304 students at the commencement of the session against 242 at the beginning of the previous session. This shows an increase of 62, and may be regarded as an index of the popularity of this class among our students and the native community".

The Medical College at present admits two kinds of students: Civil and Military. Admission to the Civil Pupils' class is restricted to students, male or female, who were born within or whose parents are domiciled within the territorial jurisdiction of the Calcutta University. Three students are also eligible for admission from the Dacca University area and three from the Dacca Intermediate Board. There are reserved seats for students from other provinces and Indian states. Admission to the Military Pupils' class is reserved only for European and Anglo-Indian students. The admission of the students of this category is regulated by the Director-General, Indian Medical

Admission in
the Medical
College

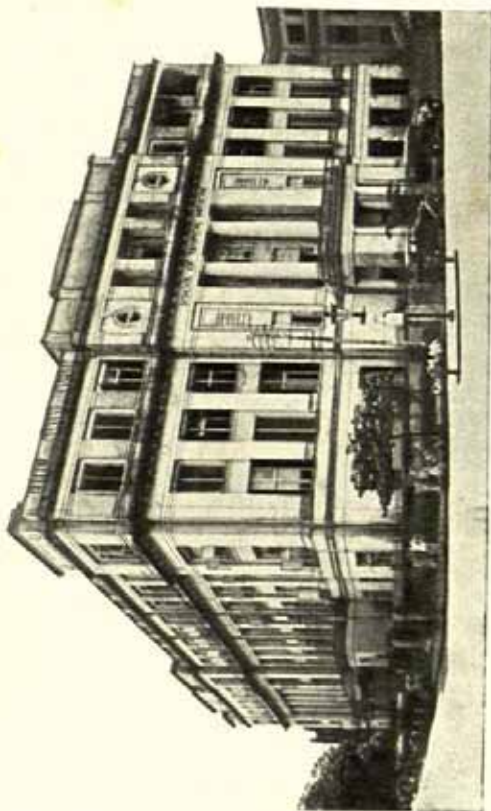
Service. The number of Civil students to be admitted every year is 105.

The College laboratories are now located in four buildings. The Anatomical and the Chemical Departments are located in separate buildings. The departments of Library and Laboratories Physics, Biology, Pathology, and Physiology are located in a three storied building, each department being self-contained and independent of others. The library of the College contains about 15,000 volumes of books, and periodicals etc. classified according to subject. There are also museums attached to the departments of Pathology, Anatomy and Biology. The Pathological museum contains 3,000 mounted and over 1000 un-mounted specimens and there are besides drawings, models etc.

The Carmichael Medical College, the first non-official recognised Medical College in India, came into existence in 1916, and affiliation to the University of Calcutta in the Preliminary Scientific M.B. standard was obtained in April of the same year. The Institution that developed into this College was, until the time of affiliation, known as the Calcutta Medical School and the College of Physicians and Surgeons of Bengal. It had its origin in the year 1886 when some independent medical practitioners met and decided that as there was a great demand for medical education and as the Government Medical schools were unable either to cope with it or to supply a sufficient number of trained medical men for the people, a private medical school should be started to supplement the efforts of the Government. The school under the name of the Calcutta School of Medicine, continued in rented houses for seventeen years. The present site in Belgachia was bought in 1896 and the school was removed in 1903. The curriculum was modified in 1887 to that of the Government medical school. The name was also changed to "the Calcutta Medical School." For clinical instruction the students used to attend the Mayo Hospital from the year 1888. The Albert Victor Hospital (a one-storied building) was

formally opened with 40 beds in 1909, the total number of beds being thus increased to 100. The institution flourished, numerous students sought admission every year, and many trained men of the Hospital Assistant standard were passed out. The College of Physicians and Surgeons of Bengal, another private institution started in 1895, and aiming at medical education to the collegiate standard, was amalgamated with it in 1903. From July 1904 there was therefore the School with a four years' course and the College with a five years' course at Belgachia. The combined institution was now called the Calcutta Medical School and College of Physicians and Surgeons of Bengal and continued to do useful work till 1916. During these thirty years the object with which the institution was started was always kept in view and hundreds of trained medical men passed out who are doing useful work under the Government, Municipalities, in the various industries, viz., Jute, Tea, Shipping, etc., or as country-practitioners. This was rendered possible, mainly by the voluntary, ungrudging, and unpaid work done both in the School and in the Hospital by the independent medical profession.

In 1911, before the introduction of the Medical Registration Bill the Government asked the private medical institutions in Calcutta to unite and form one good and efficient teaching institution with a view to help its recognition by the University or the Bengal Council of Medical Registration. Attempts at the union continued for nearly two years but failed. The Government of India then decided to render financial help to the parent institution at Belgachia with a view to its ultimate affiliation to the University of Calcutta. Negotiations were opened between the Government and the representatives of the institution in May, 1913. Ultimately, by the good offices of Colonel Edwards, who came to officiate for Colonel Harris as Inspector-General of Civil Hospitals, Bengal, a scheme was framed, the details of which were embodied in a letter dated 12th October, 1913 from the President of the Belgachia Medical Institution to Colonel Edwards and were published later in the *Calcutta Gazette* of 20th April, 1915, soon after the scheme had been sanctioned by the Secretary of State. The main conditions were that the Government offered to give a



CALCUTTA SCHOOL OF TROPICAL MEDICINE

capital grant of Rs. 5 lakhs provided the Committee raised 2½ lakhs from the public and a recurring grant of Rs. 50,000 provided they got Rs. 30,000 a year from the Calcutta Corporation and Rs. 10,000 annually from the University. The authorities had great difficulties in fulfilling the conditions of the Secretary of State and in obtaining affiliation to the University. However, at last these difficulties were overcome and, as has been mentioned above, the first affiliation to the University of Calcutta was obtained in April, 1916. The College was formally opened on the 5th of July, 1916 by His Excellency Lord Carmichael, Governor of Bengal.

In July, 1917, the College was affiliated up to the standard of the First M.B. Examination. The affiliation of the College was extended to the Final M.B. Examination in July, 1919. Students of the College appeared for the Final M.B. Examination for the first time in April, 1922. The College curricula are in accordance with the M.B. Examination rules in the Regulations of the Calcutta University. The number of students in the College is at present 755.

The Calcutta School of Tropical Medicine owes its existence to the arduous labours of Sir Leonard Rogers, I.M.S., who in 1910 proposed its inception as a suitable memorial to the late King Edward VII, and commenced to raise funds for the scheme. The earlier proposals were for a small institution with three professors, attached to the Calcutta Medical College,—the “minor scheme”. Later as the Endowment Fund grew, the present scheme the “major scheme” was adopted and finally sanctioned by the Secretary of State for India in 1920. The capital cost of the scheme was as follows:—

The Calcutta
School of
Tropical
Medicine

Government of India	...	Rs.	5,00,000 or 32 per cent.
Indian Research Fund Association	...	„	2,00,000 or 13 per cent.
Government of Bengal	...	„	4,82,833 or 31 per cent.
Endowment Fund	...	„	3,84,000 or 24 per cent.

Total Rs. 15,66,833

The attached Carmichael Hospital for Tropical Diseases was built, equipped and endowed by public subscription at a capital cost of 3½ lakhs. The School commenced work in 1921, but its official opening ceremony was not held until the 4th February 1922, when the School was officially opened by Lord Ronaldshay, then Governor of Bengal.

The annual income of the School is obtained from the Government of Bengal, the Indian Research Fund Association, and the Endowment Fund of the School. The School has always received the most generous support of the great industries, especially of the Indian Tea, Jute Mills, and Mining Associations. Lately a liberal grant has been given by the Imperial Council of Agricultural Research.

The School exists for the dual purposes of post-graduate teaching in tropical medicine and research work in tropical diseases. Three classes are held annually; one from October to April, terminating in the examination for the D.T.M. (Bengal); one from July to October, terminating in the the examination for the L.T.M. (Bengal); and one in conjunction with the new all-India Institute of Hygiene lasting nine months for the D.P.H. (Calcutta). The classes are extremely popular, and all classes of medical men from sub-assistant surgeons, private practitioners, medical missionaries, assistant surgeons, both military and civilian, to I.M.S. officers have been trained. Students have come year by year from all over India, and from many countries overseas such as Ceylon, Burma, America, China, Siam, Australia, New Guinea, Egypt and Kenya. It is hoped that the introduction of this post-graduate training will appreciably raise the status of medical practice throughout India. The professorial staff is a very strong one with nine professors and their assistants, whilst the research workers under the Indian Research Fund Association also give special teaching in their own subjects.

In the field of medical research the School has now an established international reputation. In Kalaazar the work at the

School has been outstanding. The discovery of the transmission of this disease by the sandfly *Phlebotomus argentipes* was made at the School. Methods of diagnosis have been vastly improved and serological tests introduced whilst in place of the tedious and often unsuccessful tartar emetic treatment of 1920, lasting three months, some 95 to 98 per cent. of patients can now be cured by eight injection of pentavalent antimony salts on eight consecutive days.

Research in the
School of
Tropical Medicine

Important and interesting observations have been made by Dr. Napier on anæmia among the tea garden coolies in Assam. A severe macrocytic form is prevalent which is uninfluenced by good diets but was cured only when iron was given.

In connection with the epidemiology of malaria a large amount of valuable work has been done by Dr. C. Strickland in the Dooars, Assam and lately in the delta region of Bengal as well. The role of different vibrios in the ætiology of cholera is under investigation by Major Pasricha and its treatment with bacteriophage have met with encouraging results. The Dysenteries of India have been studied by Col. Chopra and a great advancement has been made in their treatment. A good deal of work has also been done on sprue and hill diarrhœa.

Intestinal helminths have been the subject of study since the school opened, and a complete hookworm survey of India and Burma has been carried out. The work of Colonel Acton and Dr. Sundar Rao on filariasis has revolutionised our knowledge of this disease and has shown how one and the same parasite—*Wucheria bancrofti*—causes different lesions in different parts of India, owing to the differing degrees of intensity of infection depending on climatic factors. Intensive study on the nature and behaviour of the parasite is now being undertaken which when complete is expected to throw light on the therapeutic aspect of this disease. A filariasis survey of India has been completed and the study of guinea-worm disease has now been undertaken. In connection with leprosy Dr. Lowe's department is now the headquarters of

an all-India campaign of survey, treatment and propaganda and publishes a quarterly journal—*Leprosy in India*.

Colonel Chopra since 1924 has carried out an exhaustive investigation into the indigenous drugs of India; the purposes of this enquiry are threefold; to ascertain whether drugs official to the pharmacopœias cannot be manufactured in India from local sources; whether drugs with similar actions can be manufactured from indigenous sources; and to study such drugs in the indigenous systems of medicine as seem to be of value under strict experimental conditions. Col. Chopra has also taken up the study of medicinal plants and food poisons of India. A complete herbarium of all medicinal plants is being collected and nearly 1500 specimens or 4000 sheets have already been arranged. A museum of the parts of plants actually used in medicine has also been prepared. This work when completed will be of great importance from the medical, veterinary and agricultural points of view and will be a land-mark in the history of the scientific study of indigenous drugs in India.

Colonel Chopra has also since 1926 carried out an all-India enquiry into drug addiction in this country, which has led to very valuable results, and in which the League of Nations has taken a deep interest. Lately much attention has been paid regarding this problem with special reference to treatment. Thorough biochemical and biophysical investigations were made on the blood of addicts admitted in the Carmichael Hospital for Tropical Diseases before the treatment. Encouraging results have been obtained and more than 90% of the cases were discharged cured of this most pernicious habit.

For some years past Col. Chopra has been interested in the question of drug adulteration and spurious drug trade in India. A large number of drugs on the market were biologically assayed in the department of pharmacology and were found not to possess the therapeutic activity that they are alleged to have. In 1930, a Drugs Inquiry Committee under the Chairmanship of Col. Chopra was appointed by the Government of India to go fully

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into the question of drug adulteration in India. This committee recommended the urgent need for the standardisation of drugs and for legislative measures to control the drug trade and industry. In the absence of any legislation the Indian market is glutted with products of inferior quality and this constitutes a serious menace to the public health. It is gratifying to note that as a result of the recommendations of this committee, the Government of India have taken steps to introduce a bill to control the import of adulterated drugs into India. A Bio-Chemical Standardisation Laboratory has also been recently established under the direction of Brevet-Colonel R. N. Chopra, to analyse and assay the purity and potency of medicinal preparations in the Indian market. It is hoped that this step will go a great way in checking drug adulteration and spurious drug trade in this country.

A large amount of work has been done during the past 14 years, in connection with the ætiology and treatment of epidemic dropsy, a disease of which there have been recently serious and wide-spread epidemics in Bengal, Bihar and U.P.

The skin diseases' enquiry was opened in 1921 under Col. Acton. This enquiry has had splendid results, and has introduced order, classification and knowledge into one of the most confused fields in tropical medicine. This department, now under Dr. Maplestone and his colleagues has worked out the ætiology and treatment of some of the common skin diseases occurring in India that were upto this time offering great perplexities to the medical profession. The number of outpatients seen in this department annually is now over 8,000 and the department is the only one of medical mycology in India.

The Pasteur Institute of Bengal was opened at the School in 1924. The growth of this department has been amazing, and in 1933 it treated 10,058 patients. Owing to the extreme congestion this section has now been moved out to Ballygunge, decentralisa-

The Pasteur
Institute
of Bengal

tion has been introduced and the vaccine is now issued to centres throughout the province.

Besides these, many other enquiries have been carried out and are still in progress. In 1934 an "essay-review" was published, summarising the whole work of the School from 1920 to 1933.

Prior to 1920, medical graduates in India had to go to England to study tropical medicine and hygiene systematically. This was obviously incongruous, and in 1914 Sir Leonard Rogers conceived the idea of establishing institutes in India for Post-Graduate study in tropical medicine and hygiene. Sir Leonard's first proposal was that there should be a School of Tropical Medicine in Calcutta, and an Institute of Hygiene in Bombay and that both of these might be on an All-India basis. Various circumstances and considerations prevented these views from coming to fruition, but it was chiefly owing to Sir Leonard Rogers' perseverance and enthusiasm, and the generosity of the Governments of India and Bengal and various private benefactions that in 1920 the Calcutta School of Tropical Medicine and Hygiene was opened which combined teaching and research in both tropical medicine and hygiene. A Professorship in Hygiene was established, and a course of instruction arranged in the School for the Diploma of Public Health of the Calcutta University. There were obvious limitations to the scope and outlook of this arrangement. Workers highly trained in general hygiene and specialists in some particular branch are needed in India, and as time goes on and public health policy broadens and expands in all Indian Provinces, such workers trained in Indian needs and with Indian experience will be more and more required.

Dr. W. S. Carter, M.D., Associate Director of the Rockefeller Foundation in his periodic tours of India and the Far East, met General Megaw and General Graham on various occasions and became deeply impressed with the necessity for establishing an All-India Institute of Hygiene. Much of the teaching in basic

The All-India
Institute of
Hygiene and
Public Health

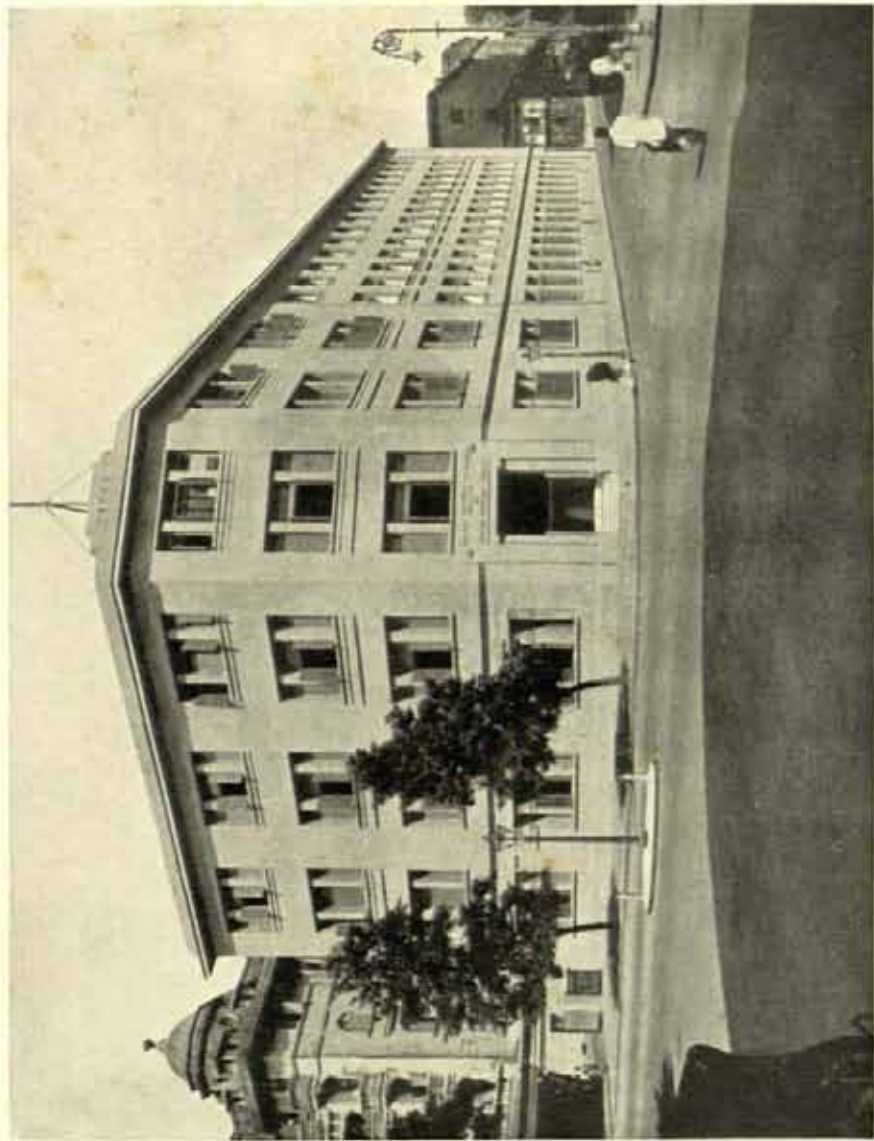
subjects, such as bacteriology and protozoology, for the Diploma of Public Health is similar to that for the Diploma of Tropical Medicine, and as this was being taught in the School of Tropical Medicine, Dr. Carter at once grasped the obvious advantages of Calcutta as a location for an All-India Institute, and of a site close to the Calcutta School of Tropical Medicine, where the basic subjects would continue to be taught. By this means it would be necessary to duplicate these courses, and at the same time the Institute would deal with purely public health subjects specially related to Indian requirements. As a result of discussion with General Megaw and others, Dr. Carter, on behalf of the Rockefeller Foundation, addressed the Government of India in terms embodying these proposals, offering to provide the cost of acquiring the site selected, and to build and equip an All-India Institute of Hygiene and Public Health, and further asking for the Government of India's assurance that they would meet the recurring cost of staff maintenance after the building was handed over to them. The Government of India gratefully accepted this munificent offer and negotiations for the acquisition of the site were commenced. This was acquired finally in July 1930, and the site was cleared and building commenced in September.

The building is four-storeyed and is E shaped, the long limb being in the centre. Six sections are accommodated, *viz.*, (1) Public Health Administration, (2) Sanitary Engineering (3) Vital Statistics and Epidemiology, (4) Biochemistry and Nutrition, (5) Malariology and Rural Hygiene, and (6) Maternity and Child Welfare and School Hygiene. Each section has one unit rooms for the workers. The working sections are placed in the central limb of the building, facing north with an excellent and unimpeded north light. In the west block are placed the administrative rooms, lecture theatre, practical class rooms, museum, and a large auditorium to seat 200 people. The eastern limb houses store rooms and lavatories, while a separate annexe provides for an animal room on each floor. The library is in the centre block on the top floor. Three unit rooms on each floor and the library and reading room are provided with conditioned air during the hot

months of the year. The head of each section thus has a cooled room and in addition there will be a spare cooled unit room on each floor where workers on that floor may work in comfort, or engage in any special work requiring a cooled atmosphere.

Each section is staffed by a Professor, an Assistant Professor, and laboratory or other assistants. The primary object of the Institute is to bridge over the gulf between the results achieved by pure research and their practical application to the community. Its function will therefore primarily be that of instruction. The subjects for the Diploma of Public Health, Part I (Bacteriology, Protozoology and Public Health Laboratory Practice), will continue to be taught by the staff of the School of Tropical Medicine, but the specialised subjects in Public Health will be taught by the staff of the Institute, each Professor dealing with his specialised subject. The examination for the D. P. H. is conducted by the University of Calcutta, with which the new Institute has been Affiliated. It is also intended to provide short Post-Graduate instruction in special subjects for public workers desiring to pursue advanced study, and the Calcutta University has now instituted a higher degree (Doctorate in Public Health Science) which requires a year's training in the Institute in some special branch of public health science. Considering the importance of maternity and child welfare work and public health nursing, special courses in these subjects have been instituted for women graduates. The Institute will be co-ordinated with the various aspects of practical hygiene and public health all over India, and it is hoped will be able to render assistance to public health administrators and workers, and institute enquiries and investigations of a practical nature in the application of medical research and knowledge for the betterment of the Indian people.

Professors and Assistant Professors have been appointed to the departments of Biochemistry and Nutrition, Epidemiology and Vital Statistics, and Malariology. The Department of Maternity and Child Welfare has also been opened and is being financed at present by the Countess of Dufferin Fund. Instruction and investigation and research have commenced in these sections. A com-



ALL-INDIA INSTITUTE OF HYGIENE AND PUBLIC HEALTH



prehensive investigation into the cholera carrier question has been started under the auspices of the Indian Research Fund Association. Dr. Linton and Dr. Muir have also been accommodated in the Institute and are working on the biochemistry of the cholera organisms and on leprosy respectively.

There are at present nine medical schools of which six are Government institutions. These institutions are controlled by the *State Medical Faculty of Bengal*. This faculty was established in August 1914 for examining the students of medical schools which were recognised by the Bengal Council of Medical Registration. The passed students of these schools are designated Licentiates of the State Medical Faculty of Bengal, a qualification recognised for registration. The students of the recognised medical schools are eligible, after a study of four years to appear at this examination. The first Licentiate examination was held in 1915.

**The State
Medical
Faculty**

There are at present nine medical schools in the province which are affiliated to the State Medical Faculty of Bengal. Amongst these institutions six are Government schools. In 1935-36 there were 2,954 students in all the medical schools and 418 students passed out during the year as duly qualified licentiates of the State Medical Faculty. The training of compounders is conducted in most of the medical schools. In Calcutta there are three medical schools recognised by the State Medical Faculty of Bengal. These are—the Campbell Medical School which is run by the Government and is the biggest of all, the National Medical Institute and the Calcutta Medical Institute.

**The
Medical School**

The Jatiya Ayurvijnana Parishad or the National Medical Council, Bengal came into being in 1921 through the efforts of the great national leader C. R. Das. The increasing demand in the country for medical relief necessitated by the appalling death-rate from malaria, Kala-azar, Cholera, small-pox and other preventi-

**The National
Medical Coun-
cil, Bengal**

ble diseases coupled with the daily growing desire for medical education—as testified by the disappointment of a very large number of qualified students seeking and being refused admission every year into the existing medical schools and colleges—was again in 1921 greatly strengthened by the desire for a professional training of those who had left the University College at the call of the Non-co-operation movement.

In the same year the National Medical College or the Vaidya-shastra-pith was started. The name was subsequently changed into *Jatiya Ayurviijnan Vidyalaya* or the National Medical Institute. The controlling body of the Medical Faculty was called the *Jatiya Ayurviijnan Parishad* which was duly registered. The Parishad as the parent body now manages three co-related institutions: the National Medical Institute, the Chittaranjan Hospital and the National Infirmary. The Institute has now been affiliated to the License Standard of the State Medical Faculty of Medicine which enjoins a course of training for four years. Of these students coming mostly from Bengal a pretty large number hailed from other parts of India.

The Chittaranjan Hospital with its 150 beds and a well-equipped Out-door Department and also the National Infirmary with its 65 beds provided excellent facilities to students for hospital and clinical work. The Institute has made arrangements with the different special hospitals so that the students get facilities for working.

The number of cases treated in the Indoor during the year 1935-36 was 28,479. There are altogether eight departments in the out-door. The morning outdoors consist of surgical, medical, gynaecological, tuberculosis and ear, nose, and throat departments. The evening outdoors consist of Kala-azar, malaria, venereal and eye. There are also cholera and emergency wards. The Institute and the office are situated at 32, Gorachand Road, the Chittaranjan Hospital at 24, Gorachand Road and the National Infirmary, a home for incurable and diseased destitutes at 189, Manicktola Main Road.

In the year 1907 the late Dr. S. K. Mullick, M.D., M.S., C.B.E, started medical institution under the name of "National Medical College of India" and in 1910 a Hospital called "Calcutta Free Hospital" (subsequently styled as Kings Hospital). They were both located at 191, Bowbazar Street, Calcutta. Both the School and Hospital were registered under Act XXI of 1860 as two different Societies.

**The Calcutta
Medical
Institute**

In 1914 the present site at 101/3, Upper Circular Road was secured from the Corporation of Calcutta on 99 years lease. The above lease was subsequently affirmed in 1932 in a supplementary document between the Corporation of Calcutta and the Calcutta Medical Institute. A moderately-sized three storied building was constructed for the Hospital by public donations on the said leasehold land. It accommodated at first about 20 indoor beds with an outdoor department.

Dr. S. K. Mullick tried for sometime to get affiliation from the Bengal Council of Medical Registration and he was informed by the said Council in November, 1922 that before the institution could be recognised, it should be reorganised and reconstituted. It was found that the changes in the objects of the two then existing societies were necessary and it was deemed advisable to have one institution instead of two separate registered Societies governing the teaching institution and the hospital. Accordingly in April, 1923 a new Society called *The Calcutta Medical Institute* was formed with a strong Executive Committee, composed of eminent medical men, veteran educationists and some well known citizens, which was incorporated and registered under Act XXI of 1860. The newly formed Society took over charge of all the assets and liabilities of the two Societies, the National Medical College of India and the Calcutta Free Hospital which were both dissolved in May, 1923. The new Society had to meet creditors of the two old societies who claimed a large amount due to them which were paid off gradually as debts of honour.

The Calcutta Medical Institute at once set themselves earnestly for the recognition of the Calcutta Medical School by the Bengal

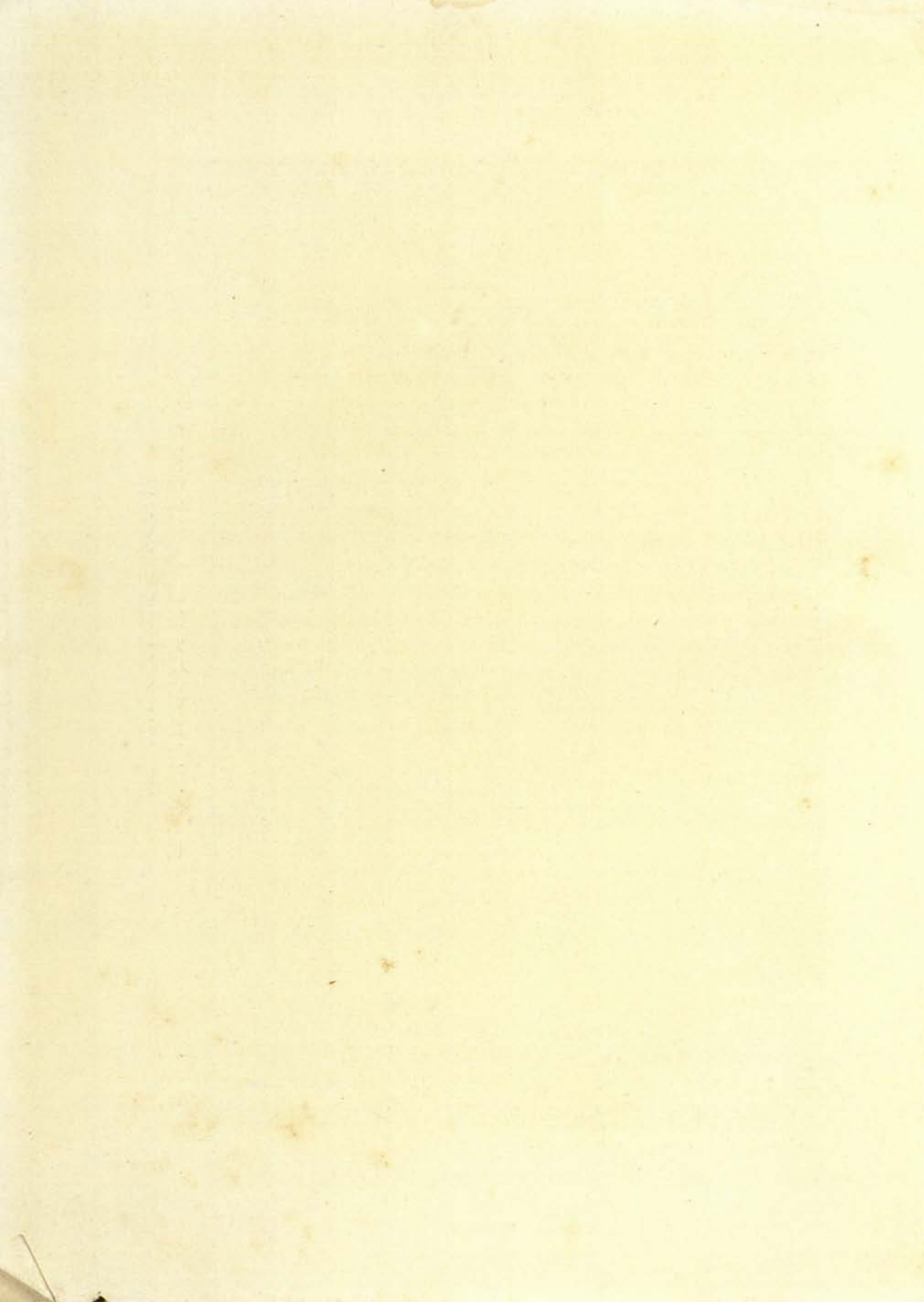
Council of Medical Registration and the attached Hospital by the Government. A committee, appointed by the Bengal Council of Medical Registration, after two inspections and having been satisfied with the suggested improvements, recommended affiliation of the School and laid down the manner in which the students might get their clinical teachings in other hospitals. The authorities of School agreed to the said conditions and arranged for the clinical teachings in the Mayo, Sambhunath Pandit, Howrah General and S. V. S. Marwari Hospitals on payment of fees amounting to about Rs. 6,000 a year. Besides extensive improvements had to be effected in the Physiological, Pathological, Anatomy and Materia Medica departments. In 1923 affiliation was granted to this School up to Intermediate standard temporarily for 2 years and in 1926 it was found that the School was fit to train students upto the Final Licentiate standard of the State Medical Faculty of Bengal and again temporary affiliation was granted and one of the conditions imposed was that the attached Hospital should be enlarged to hold 150 beds.

The Executive committee of the Institute was helped by an appeal over the signatures of late Lord Sinha of Raipur, the late Sir Kailash Chandra Bose Kt., Sir Hariram Goenka Kt. and Mr. S. N. Mallik C.I.E. and it was fairly responded. The necessity of an up-to-date Anatomy Block of the modern style was found essential and in 1927 a three-storied building of the approved type was constructed and fitted with 22 marble dissection tables etc., at a cost of about Rs. 60,000. To meet the terms imposed by the Bengal Council of Medical Registration on the authorities of this Institute, viz., to have 150 beds in the attached hospital, the authorities had a plan for a big three-storied hospital prepared in consultation with Major-Gen'l Tate, the then Surgeon General with the Government of Bengal and Mr. Hathaway, the then City Architect, Corporation of Calcutta.

On 20.11.26 His Excellency, Lord Lytton, the then Governor of Bengal laid the foundation stone of the new Hospital Block and was graciously pleased to recommend public help as an useful and needed institution. Later on with the advise of Major-Gen'l Tate and other experts, additions and alterations were deemed necessary



SIR JOHN ANDERSON EMERGENCY WARD
(MEDICAL COLLEGE, BENGAL)



and a tall four-storied building was decided upon which could accommodate 150 beds with paying cabins, big operation theatres for male and female, labour rooms, etc., and quarters for nurses, family quarters for Resident Medical Officer and quarters for House Staffs. The enlargement of the Hospital has removed a painful difficulty of students being obliged to go elsewhere for clinical teaching. More space was required. So in 1929 under the provisions of the L.A. Act about 8 cottahs of land lying to the east were acquired for about Rs. 18,000 and in 1930 the adjoining three-storied building being premises Nos. 2 & 2/1, Maharani Swarnamoyee Road were purchased by private treaty for about Rs. 45,000.

In 1929-30 the construction of the New Hospital Block commenced and during 1931 for want of funds there was a lull in the progress of the building and it was completed in 1932 and began to accommodate patients from January 1933 though it was formally opened by Hon'ble Sir B. P. Sinha Roy Kt., Minister to the Government of Bengal on 17.2.33. The Corporation of Calcutta and the Government of Bengal were pleased to sanction Rs. 1,45,000 and Rs. 50,000 respectively towards the capital grant for the construction of the New Hospital Block and about Rs. 40,000 were received from the generous public including some members of the Institute out of Rs. 3½ lacs spent for. The balance was met from Institute fund and by loan.

Of the endowments received from the generous public amounting to a little over a lac of rupees, special mention may be made of the princely donation of Rs. 50,000 in G.P. notes by late Mr. Girindra Nath Roy who died on 28.11.34 for the maintenance of a ward of 14 beds named after his late father "Mohendro Nauth Roy."

A New lecture Hall which can accommodate about 250 students had been built in July, 1932 at a cost of Rs. 7,000. To provide for pressing additional accommodation for hospital beds and the Emergency and Outdoor departments, the authorities had to remodel the former three-storied Hospital Block to a four-storied building with a number of rooms etc., added on all sides at a cost of about

Rs. 50,000. Ever since the recognition of the School as fit to train up and send students to the several State Medical Faculty Examinations, the result of this School has been uniformly gratifying in comparison with those of the other Medical Schools of the Province. Every emulation is afforded for the growth of healthy corporate life amongst students.

The Jamini Bhusan Ashtanga Ayurvedic College, 170, Raja Dinendra Street was founded in 1916. It is the biggest Institution in Calcutta of its kind and its object is to impart to its pupils a thorough and systematic knowledge of Ayurvedic in all its eight branches. The eight branches are the following :—

Ashtanga
Ayurvedic College

- i. Salya-Tantra (surgery and midwifery).
- ii. Salakya-Tantra (treatment of diseases of the eye, the ear, the nose and the throat).
- iii. Kaya-Chikitsa (medicine).
- iv. Bhuta-vidya (a treatment of mental diseases).
- v. Kaumarabhritya (Child Hygiene and treatment of children's diseases).
- vi. Agada-Tantra (Toxicology).
- vii. Rasayana-Tantra.
- viii. Vajikarana-Tantra.

There are also arrangements for teaching Anatomy, Physiology, Botany, Chemistry, Pharmacology, Therapeutics etc.

Attached to the College is a Hospital with accommodation for 125 patients. The hospital is broadly divided into two departments, medical and surgical and the students have thus an excellent opportunity of getting a full clinical training and practical knowledge both in medicine and surgery. The treatment of cases in all the departments is carried on according to Ayurvedic methods and the students of the College are also given practical training in the diagnosis and treatment of surgical cases both according to Ayurvedic and modern surgery.

There is also an attached Outdoor Dispensary which has both the medical and surgical departments. The average daily attendance of patients is about 300. There are two courses of study, the pass course extends over a period of 4 years and the Honours course over a period of 5 years.

The equipments of the College are : a pharmacy with necessary apparatuses for the preparation of medicines, a drugs museum, a surgical museum, a pathological and research laboratory, a garden for the cultivation of medicinal plants, an anatomical museum, a library etc. The object of the Institution is the cultivation of the ancient Indian Ayurvedic with all the advantages and accessories derivable from modern medical science. The prescribed text books are mostly in Sanskrit and Bengali but for the modern sciences the books in English like Hill's *Physiology*, Halliburton's *Physiology*, have been prescribed, for study.

Amongst other institutions of this kind are to be named the *Vaidyashastra Pith and Hospital* at 294, Upper Circular Road and the *Vishwanath Ayurveda College and Hospital* at 94, Grey Street.

In the year 1920, a dental training institution was started in the office of Dr. R. Ahmed, D. D. S., F. I. C. D. Dr. Ahmed realised the need in India for trained dentists and undertook to train men in elements of the profession so that they might engage in practice with some knowledge of Dental Science. The school started by him continued its work till 1923-24 when further accommodation was needed. The school was shifted to 261, Bowbazar Street.

**The Calcutta
Dental College
and Hospital**

The next important step was organization of a proper curriculum. The course was formulated along the lines of similar institutions in America and on the continent of Europe. Dr. Ahmed now gathered round him a number of trained Dentists and physicians to teach subjects and got the school registered under the name *The Calcutta Dental College and Hospital*. It is the only Institution of the kind in India. The School is now located in a spacious building at 114 Lower Circular Road.

EDUCATION IN ENGINEERING

The Bengal Engineering College is at present the biggest institution managed by the Government for imparting higher education in Engineering. The College was founded in 1880 and is the only institution affiliated to the University of Calcutta, up to the standard of B. E. (Bachelor of Engineering). It is located at Sibpur on a beautiful site on the banks of the Hooghly near the Royal Botanic Gardens. Admissions to the College are made yearly up to a maximum of 70 students (40 Civil, 30 Mechanical and Electrical of whom 20 per cent. may be occasional students). The average total number of students that has been on roll during the last few years is about 280. The College has three departments :

The Bengal
Engineering
College

I. *Civil Engineering Department*, affiliated to the standard of the Degree of Bachelor of Engineering in Civil Engineering and offering the full College Diploma of Civil Engineer.

II. *Mechanical Engineering Department* affiliated to the standard of the Degree of Bachelor of Engineering in Mechanical Engineering.

III. *Electrical Engineering Department* affiliated to the standard of the Degree of Bachelor of Engineering in Electrical Engineering.

The course for the full College certificate in Civil Engineering extends over five years, four years at the College followed by one year of practical training on works in progress, and that in Mechanical and Electrical Engineering extends over six years, four years at the College followed by two years of practical training in workshops. There are also courses for the Diploma and Associateship in Mechanical and Electrical Engineering. The candidates who want to qualify for this Diploma must have completed 4 years of Apprenticeship in the workshops recognised by the Board of Apprentice Training and have passed a competitive examination held at the end of the 4th year of Apprenticeship. Candidates who

have passed the I. Sc. or an equivalent examination are also eligible for admission. The Diploma Course and the Associateship course, both extend for a period of six years, three years at the College, followed by three or two years of practical training in the workshops, according to the class to which one is admitted.

There is an Engineering School at Dacca called the Ashanullah School of Engineering which had a total enrolment of 409 pupils in 1933-34. The school is maintained by the Government. The Calcutta Technical School is another senior technical school which imparts vocational education. On the 31st March 1934 it registered 164 pupils. The Kanchrapara Technical School had on that date 74 students on its rolls. The Bengal-Nagpur Railway Technical School at Kharagpur and an enrolment of 37 apprentices on 31st March 1934.

Other Engineering Schools

Some of the technical Institutes have come into being through public effort. The Ballygunge Engineering College has been recently started with the object of imparting technical education in Mechanical Engineering, Electrical Engineering, Motor Engineering etc., through the medium of vernacular. The most successful enterprise of this kind consists in the foundation of the Bengal Technical Institute.

Ballygunge Engineering College

The Bengal Technical Institute was founded in 1906. When started, Mr. T. Palit (afterwards Sir Tarak Nath Palit) was the moving spirit. Subsequently, in 1910, it was amalgamated with the National Council of Education, Bengal, and since then it has been under the control and management of that body. Sir Rash Behari Ghose was its first President and he was succeeded in that office by the late Sir Ashutosh Chaudhuri. From time to time the office of the Secretary has been filled by some of the most prominent men in Bengal's public life, such as the late Mr. Rasul, Sir Devaprasad Sarvadhicari, the late Sir Ashutosh Chaudhuri and Mr. Fazlul Haque.

The Bengal Technical Institute

In 1922 the *National Council of Education* was able to secure from the Corporation of Calcutta a fine piece of ground measuring about 100 bighas at Jadabpur on Gariahata Road, within 5 miles of Sealdah and in the immediate vicinity of the Jadabpur Railway Station, and on that site a big Technical Institute has been built. It contains Workshops with a Power House and Laboratories for Mechanical Engineering, Electrical Engineering, Chemical Engineering and Physics. It has also a central College Building and contains a rich and well-equipped Library.

The Bengal Technical Institute carries on the following courses :—

- A. Four Years' Course in each of the following branches (1) Mechanical Engineering; (2) Electrical Engineering; (3) Chemical Engineering.
- B. Three Years' Course in Mechanical and Electrical Engineering combined. In this course the rudiments of Engineering theory are taught, most of the students' time being spent in the Workshops, Power House and Drawing-shop.
- C. Two Years' Course in Survey and Draftsmanship.
- D. The Apprentice Department provides theoretical training mainly for Apprentices employed in Workshop of the Corporation of Calcutta.

The Technical Institute is served by an efficient staff including graduates of the best American, German and British Universities and Technological Institutes, besides some brilliant scholars of Calcutta University and of the Institute; and on an average there is one teacher for every 15 students.

Students of the Institute hail from all parts of India, and Graduates of the Institute are now to be found in almost all important Factories, Workshops and Industrial organisations. Some have started independent businesses in Calcutta and outside. The Institute has so far received a public donation of Rs. 26,00,000, the biggest donors being Sir Rashbehari Ghose and S. J. Brojendra Kishore Roy Chowdhury.

COMMERCIAL EDUCATION

Facilities for higher commercial education are provided by the Calcutta and Dacca Universities and the Commerce Department of the Vidyasagar College, Calcutta. The degrees given by the University are the Bachelor of Commerce (B. Com.) and Master of Commerce (M. Com.). In 1934, 25 candidates passed the M. Com. examination. Students who obtained the B. Com. degree of the Calcutta and Dacca Universities were 105.

The number of commercial schools in the province is 22 of which, the *Government Commercial Institute* is under Government management. The Institute first took form under the auspices of Presidency College, Calcutta, in 1905 at a time when the problems of Commercial Education had not engaged the serious attention of educationists and business men in most other parts of India. Even to-day, it stands alone in the Province in its character, aims and management. The Institute affords training of a practical character, vocational enough to be deemed technical, well up-to-date, and capable of direct application to the trade of the City. The subjects taught are approached in an undogmatic way as opposed to the academic methods followed in the Universities and Arts Colleges, the aim being to encourage in the students the growth of a business frame of mind.

Government
Commercial
Institute,
Calcutta

There are arrangements for a comprehensive course of study, covering a period of two years, in the Day classes, which are meant for young aspirants to business, who have just left school. The Evening classes offer facilities to those who may have received the necessary preliminary training in the Day classes and have already found employment and who are desirous of bettering their qualifications. There are special arrangements for classes in connection with the training of students for the examinations of the London Institute of Bankers, the Accountancy Diploma Board, Bombay, and those held for recruitment to the Railway Accounts Service. The Institute follows courses of study carefully prepared under the

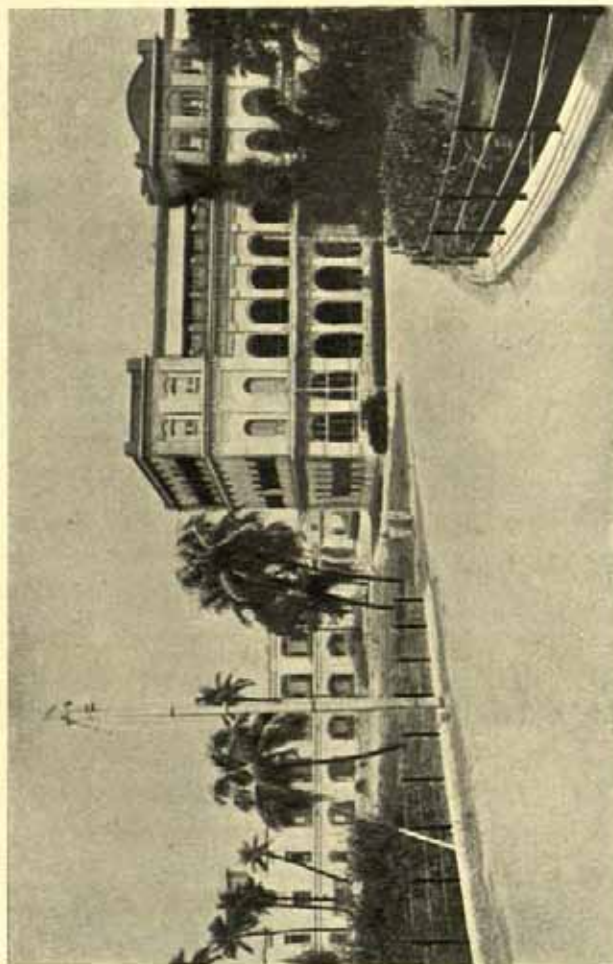
guidance of the Board; affiliates other commercial institutions in the province; holds its own examinations; and grants its own Diploma. It is a Government institution controlled by a Board of Management on which the influential section of the Mercantile community, both Indian and European, is fairly represented. The Institute had 396 pupils on its roll in 1934.

EDUCATION OF DEAF, DUMB AND BLIND

A class was started in April 1893 in a small room in the City College at No. 13, Mirzapore Street by the late Mr. Srinath Sinha, which afterwards became the Calcutta Deaf & Dumb School. In May of the same year he was joined by the late Mr. Jamini Nath Banerjee and Mr. Mohini Mohan Majumder. In 1896 Mr. Banerji was sent to England and America for a training in the art of teaching the deaf. He was the first Principal of the school and served in that capacity till the day of his death in December, 1921. The present position of the school is largely due to his great organising abilities and superior merits as a teacher of the deaf.

The present home of the school at 293, Upper Circular Road, was built in 1903. The following gentlemen rendered great services to the school in those difficult days of its infancy viz—The late Mr. C. W. Bolton, C.S.I., I.C.S., who was the President of the school, the Late Mr. Nobin Chand Boral, one of the Vice-Presidents of the school, the late Mr. Umesh Chandra Dutt who was the first Secretary of the school and served the school in that capacity till the day of his death, and the late Principal F. J. Rowe of Presidency College, Calcutta.

The school is managed by an Executive Committee elected by the donors and subscribers to the school. Amongst the benefactors of the school the name of Raja Sarat Chandra Roy Choudhury Bahadur of Chanchal, Malda, should be prominently mentioned. He has given to the school an endowment of two lacs and a donation of Rs. 20,000/- towards the cost of an extension of the school buildings. The school receives a Government Grant of about rupees



THE CARMICHAEL MEDICAL COLLEGE

thousand per month and a Calcutta Corporation Grant of rupees ten thousand per year.

The Oral method of instruction is employed in teaching the students by which they are taught to speak and understand others speaking by watching the movements of the speaker's lips. The use of signs is not allowed; finger-spelling is also not used. There are following Departments in the School:—(1) *Normal Department*—The school has got a Teachers' Training Department and receives normal scholars from all parts of India. Many teachers trained here are teaching in different schools all over the country and some have established schools for the deaf at different places of the country such as Dacca, Barisal, Rajshahi, Chittagong, Berhampore, Patna, Delhi, Allahabad, Mysore, Baroda etc. (2) *Industrial Department*—There is an Industrial Department attached to the school where the boys are trained in different crafts. Here we find Drawing, Painting, Clay-modelling and casting Papier machie work, Printing, Tailoring, Machinshop, Smithy, Carpentry, Book-binding etc. for the boys and Sewing, Embroidery, Block making for textile Printing, Cooking etc., for the girls. (3) *Girls Department*—The Department for girls is quite separate under the direct control of the Principal. At present there are six lady teachers. (4) *Hostels*—A hostel for the boys and a hostel for the girls are attached to the school. Many of the teachers reside in the hostels as resident teachers to look after the boarders and help them in their studies.

The Calcutta Deaf & Dumb School is the premier institution of its kind in the whole of India. The School in recent years has greatly developed on all sides. During the last twelve years we find the following developments—The Sivapada Memorial Hall, Girls Hostel, a workshop containing well-equipped classes for Carpentry, machinshop and smithy, a three storied Industrial Building, addition of Book-binding to the Industrial crafts, extension of the main building to the north and the school buses for the day scholars.

The general aim of the school has long been satisfied in having made the pupil learn to talk and understand others by lip-reading. But the school has done and is doing a great service by making its

special aim fulfilled by training the students to earn their own livelihood. They are trained here as skilled artisans in the Industrial Department of the school and when their courses of instruction is over they generally get employment in various industrial firms and workshops and also start business in various occupations. Quite a number of them are now employed in the Govt., Corporation and Railway workshops and they have been working there with great credit.

The Calcutta Blind School was founded in 1897 with a view :—

- | | |
|--|--|
| (1) To provide a home for the homeless and helpless blind without any distinction of sex, nationality or religion; | |
| Calcutta
Blind School | (2) impart, as far as practicable, scientific, industrial and literary education to the blind. |

The ideal of giving a complete education and training to the pupils, so as to fit them to be self-supporting members of the community, has always been kept in view.

The School has the following five departments :—A Preparatory School, a Secondary School, a Technical School, a Music School and a Normal Class.

The Course of Instruction is as follows :—(1) *Physical Education*, including, Gymnastics, Drill, Swimming, Cycling and other Athletic Sports. As the vitality of the ordinary blind person is said to be about 25 per cent. below that of his sighted compeer, it is essential that careful attention be paid to physical training. (2) *General Education* includes (i) in the Preparatory Course, Kindergarten, Reading, Writing, Arithmetic, Modelling, Nature Study and Object Lessons (ii) in the Secondary Course, Literature (English, Hindi, Bengali and Sanskrit), History, Geography, Mathematics, Shorthand and Typewriting. In the Secondary Course, students are prepared for the Matriculation Examination. (3) In the *Music School*, instruction is given both in vocal and instrumental music. Special attention is paid to those who intend to follow Music as a profession. (4) *Technical Education* includes manufacturing and repairing of Cane and Bamboo furniture, etc., Coir Mat Weaving, Weaving on looms and the Wool Knitting for the girls.

Manipulation of Carpentry tools is taught to help the pupils in their trade. (5) In the *Normal Class*, teachers are trained in the latest methods of teaching the blind.

Great attention is always paid to hand-training and development of touch, which is the essential sense and almost the only asset of the blind, without which their training is an impossibility. The pupils also have lessons in learning locality and direction, for the intuitive faculty which guides some children is entirely wanting in others.

Suitable readings from the dailies and periodicals are given every morning and evening, and weekly study groups are held to keep the pupils in touch with the outside world, and to enlighten them on current events and topics.

The School is located in the open country on the Diamond Harbour Road, Behala, 6 miles south of Calcutta. There are spacious residential and school buildings, and large playgrounds. Teachers both in the Boys' and Girls' Departments are in residence and look after the pupils. The Principal and the Superintendent also have their quarters in the compound.

EDUCATION IN WEAVING

Serampore is the chief town of a subdivision of the Hooghly district. It is located at a distance of 13 miles from Howrah or from Sealdah by the Eastern Bengal Railway to Barrackpore and from there by ferry service across the river. Being situated on the Grand Trunk Road, motorists frequently visit the station, for the town is of historical importance and there are many things of interest to be seen.

In the year 1901 a Conference of Directors of Public Instruction of the various provinces was held at Simla to consider the question of industrial education in India. As a result of their deliberations, the Director of Public Instruction, Bengal, submitted a report proposing that a school should be established for the purpose of giving

Government
Weaving
Institute,
Serampore

instruction in up-to-date methods of hand weaving, as, next to agriculture, handloom weaving constituted the most important industry of Bengal. A special Committee was then appointed to institute enquiries into the economic conditions of the handloom industry and the causes of its decline, and to suggest remedial measures. They were unanimous in their opinion that the industry still possessed great vitality and that it could be revived by the introduction of fly-shuttle looms and by instruction in modern methods of weaving. Serampore was selected as the most suitable centre at which operations could be commenced, as it contained a large and intelligent artisan population who had already adopted—

- (i) the fly-shuttle loom which nearly doubles the mechanical efficiency of the primitive loom; and
- (ii) the cage creel device, which, at a trifling cost, enables the weaver to lay 50 to 100 warp threads in one operation, in place of the primitive process by which only one or two threads constituting the warp could be dealt with.

Thus the Weaving Institute at Serampore came to be established with the object of giving technical instruction in the best and latest methods of handweaving, of extending a knowledge of the mechanical improvements which make the modern handloom so vastly more effective an instrument than the primitive looms still widely used by the weavers in Bengal and so of strengthening and reviving the weaving industry in this country. With these objects in view two quite distinct grades of introduction are given, forming higher and lower classes—

- (i) to young men of a fair degree of education who may be trained as teachers, managers and organisers of the weaving industry; these form the higher classes.
- (ii) to actual handloom weavers from Serampore and other places; these form the lower, or artisan classes.

As the scheme was entirely of an experimental nature it was decided to accommodate the Institute in temporary buildings, and Raja Kishorilal Goswami Bahadur of Serampore very kindly placed

one of his buildings at the disposal of Government for the purpose at a nominal rent. Subsequently a piece of land measuring about 14 bighas was also acquired for the location of the permanent buildings of the Institute. Meanwhile the Swadeshi movement of 1905 helped to bring the scheme to a head and contributed to the speedy establishment of the School. In addition to the Institute buildings, there are three hostels attached to the Institute for Hindu, Muhammadan, and Christian boarders, respectively. Each of these hostels is under the supervision of a Superintendent controlled by the Principal, and the health of the students is looked after by the authorities of the Walsh Hospital, Serampore.

The Institute was formally opened in the year 1909 under a Principal (recruited from England), with an Assistant Principal and a small staff. The Institute since the day of its inception has been very popular, and its name is now familiar throughout India to those interested in the handloom weaving industry, as this is the only Institute of its kind where young men of the undergraduate type are trained in the practice and theory of handloom weaving and its allied subjects on the lines of the Manchester College of Technology. The Institute has been so popular that although a new building was rented by way of extending the accommodation, over 2,000 applicants had to be refused admission for want of accommodation in 1927. The Institute registered 147 pupils on the 31st March 1933 against 138 on the corresponding date of the previous year.

VETERINARY EDUCATION

In 1883, a Committee was appointed by the Government of Bengal to consider the expediency of establishing a Veterinary College in Calcutta. The committee strongly urged the necessity of the establishment of a Veterinary College and Hospital near Calcutta. The question was again taken up in earnest in 1886 and a scheme was submitted by the Government of Bengal to the Government of India, in which definite proposals for the establishment of a Veterinary College in

Bengal
Veterinary
College

Bengal were made, but the introduction of the scheme was deferred. The subject was again taken into consideration in connection with the Technical college at Sibpore and a modified scheme involving a smaller outlay than had been originally proposed was submitted. The scheme was being considered when it came to the notice of the Government, that there had already been established at Sodepore, in the neighbourhood of Calcutta, a Pinjrapole where some 1,300 animals were daily fed and medical treatment was given to them. This institution was founded by some native Marwari gentlemen of Burra Bazar, Calcutta, in 1885 and was supported by donations from the public, which already amounted to three lakhs of rupees. It was suggested that a Veterinary School might be established in the same place and worked in connection with the Pinjrapole. The Committee of the Pinjrapole accepted the proposal under certain conditions and undertook to provide a site, free of charge for the Veterinary School, and they were willing to contribute Rs. 30,000 towards the construction of the necessary buildings.

Dr. Kenneth McLeod, who was one of the members of the Cattle Plague Commission of 1871 and of the Committee appointed in 1883, had, with Mr. Finnuane, visited the locality on 25th February, 1890, and they were both of opinion that the offer of the Pinjrapole Committee might be accepted. Sir Dinshaw Maneckjee Petit of Bombay also offered to contribute Rs. 25,000 towards the cost of the Hospital. When matters reached this stage, the question of a more suitable site arose. Various sites were proposed, such as Entally, Sibpore and Bhagalpore. But afterwards, Belgachia, where Raja Shew Bux Bagla, President of the Managing Committee of the Calcutta Pinjrapole Society, owned a garden, was selected as the best site. In December 1892, orders were passed by Government to make a commencement of actual work in connection with the Institution. The foundation stone was laid by Sir Charles Elliot, Lieutenant-Governor of Bengal, on the 20th April, 1892, and the institution was opened on the 10th January 1894.

Thus the Bengal Veterinary Institution, consisting of the Kenneth MacLeod Veterinary School and the Sir Dinshaw Ma-

neckjee Petit Veterinary Hospital, was established at Belgachia by the Government of Bengal as a school for instruction of students of Veterinary Science and as a hospital for the treatment of sick and injured animals, mainly through the munificence of Raja Shew Bux Bagla of Calcutta, who, in memory of his late father Babu Ramdayal Bagla, made a gift of $3\frac{1}{4}$ bighas of land as a site for the school and further subscribed Rs. 30,000 towards its erection and Sir Dinshaw Maneckjee Petit who gave Rs. 25,000 towards the cost of the hospital, the Government of Bengal acquiring an additional five bighas two cottahs of land at a cost of Rs. 4,381, and supplying such other sums as were required to complete the school and the hospital.

The school is named after Dr. Kenneth MacLeod in recognition of the great interest he took, throughout his service in Veterinary matters, which is shown by the fact that on his departure from India, he endorsed to Government 5 per cent debentures amounting to Rs. 2,500 for the purpose of founding a scholarship called the "Shew Bux Bagla Scholarship" in recognition of that gentleman's liberality in connection with the establishment of the first Veterinary School and Hospital in Bengal. In the year 1898, the institution was raised to the status of a College. The institution is managed by a Committee.

On the 31st March, 1934 the College had 184 pupils, 110 Hindus, and 39 Mahomedans and the rest from other communities. In the previous year the College had 176 pupils. Out of 183 students who sat for the final examination 121 were successful.

EDUCATION IN MUSIC

The number of music Schools in the Province during the year 1933-34 was 7. These schools taught 328 pupils during the year. There are four big institutions in Calcutta to impart instruction in Western and Eastern music.

The Calcutta School of Music was founded in 1915 and fills

an important place in the musical life of the city. It is situated at 43, Park Mansions, Park Street. A considerable number of pupils pass through each year. The subjects are :—Singing, Pianoforte, Violin, Viola, Violincello, Wind Instruments, Chamber Music, Orchestra playing, Theory of music, Harmony and counterpoint.

The Calcutta
School of
Music

This is an Association for the cultivation and spread of Indian music on a scientific basis, and was established in 1908 at 74, Dharatola Street. Its objects are, (1) to spread and improve the cultivation of vocal and instrumental music (Indian) among the cultured people of Bengal, (2) to effect and maintain improvements in the music schools for girls and boys founded and owned by the *Sangit Sammilani*; (3) to arrange from time to time Soirees and musical entertainments—generally held in March and September; (4) to improve social fellow-feeling by friendly gatherings.

Sangit-
Sammilani

Founded by the late Sir Asutosh and Lady Pratiba Chaudhuri as the "Ananda Sabha" on the Bengali New Year's Day (the 1st of Baisakh) in 1901, it was ten years later reconstructed by them into a public institution under the name of the "Sangit Sangha" on Rakhi Purnima Day (the 30th of Sravan) in 1911. At that time, there were no institutions for the scientific study of the subject. The class of professional musicians to whom the knowledge and study of the art was confined, was rapidly dying out from want of adequate support. Classical Indian music scarcely attracted, and whatever still remained was getting vulgarized. Protiva Devi's anxious desire was to try and preserve what we still possessed, and to revive what had been lost.

Sangit-Sangha

The objects of the founders of the institution were set forth by them as follows: (1) To revive, encourage and popularise the various schools of classical Indian music, instrumental as well as vocal. (2) To promote research into, and collect all available materials for a history of Indian music, and to procure all manus-

cripts and printed books and symbolic pictures dealing with, or in any way treating of Indian music, as also to recover and publish such ancient Indian songs and musical pieces as may be still available. (3) To establish school for regular instruction in music, or aid in the formation of such schools. (4) To afford opportunities for occasional lectures on music. (5) To adopt a general system of notation adapted to Indian music of all kinds. (6) To award prizes for special skill in vocal and instrumental music. (7) To organise musical entertainments with a view to the gradual development of a taste for the art, and to afford additional means of social recreation. (8) To devise and adopt other means for the encouragement of Indian music in general.

The main institution is situated at No. 70, Corporation Street, and there are branches at the Diocesan College, Bethune College, Brahma Girls' School, Boy Scouts' Headquarters and other educational centres.

The Basanti Bidya Bithi, 87, Cornwallis Street, Calcutta, a music schools for ladies in the northern part of Calcutta, was started in 1928 with half-a-dozen girls. This Institution was run under the direct supervision of eminent gentlemen and ladies like S. Dinendra Nath Tagore, Sreejucta Bina Sen, B.A., B.T., Sreejucta Kamala Tagore, etc. There are various subjects such as music, dancing, domestic arts, hygiene and physical exercise, and they are taught to the girl-students of all ages and castes, with much care and interest by expert and eminent teachers. The various kinds of music such as Classical and Modern Bengali Songs, all kinds of Instrumental Music, and the art of notations are being taught here.

EDUCATION IN FINE ARTS

Some 73 years ago Art education was unknown in this country. Only a few stray artists remained in the village as poor remnants of the glorious bye-gone days. In the year 1854 an Art School was founded by a few wealthy citizens of Calcutta at 365, Upper Chitpore Road. The school was afterwards removed

The Government
School of Arts

to Collootala Street where now stands the Eye Infirmary of the Medical College Hospital. In 1859 this building was acquired by Government and the school was removed to a house near Sealdah, which being also taken up by Government, the school was removed to 163, Bowbazar Street. Here the Art School remained for 28 years from 1864 to 1892.

During the time of Lord Northbrook's administration Art education was seriously taken up by Government. A Committee was formed to consider the question of establishing a Picture Gallery, of taking the existing Art School under direct Government administration. A number of modern paintings and plaster replicas of antique statuary, metal figures etc., were brought together as a small beginning for the Art Gallery chiefly for the benefit of Art Students. The Art Gallery was daily visited by a large number of people, and accommodation being found inadequate at the Bowbazar building, Government considered the question of providing the school with a suitable and permanent house. And a suitable locality, in close proximity to the Indian Museum was decided upon. A suitable building was provided and the Art School together with the Art Gallery was transferred to its present situation at 28, Chowringhee Road. On March 31, 1937, there were 285 students in the various departments of the school.

On April 1, 1911, the Art Gallery was amalgamated with the Art Ware Court of the Indian Museum and the combined collection was transferred to the Indian Museum under the control of the Principal, Government School of Art, Calcutta. The courses of study are the following :—

- (1) *Fine Arts*—Drawing and painting are taught from life and nature on European model. Special importance is given for figure compositions suitable for mural painting done from the studies done by the students from life. The period required is 6 years—Elementary course 3 years and Advanced course 3 years.
- (2) *Indian Art*—Drawing, painting and design after the old Indian method are taught to enable students to illustrate traditional Indian historical subjects, as well as to give an impetus to

delineate nature and modern Indian life. The ancient Indian craft of Fresco-painting which has great future possibilities in house decoration has also been taken up in the department. The period required is 5 years—Elementary course 2 years and Advanced course 3 years. (3) *Commercial Art*—Poster Designing, Book Illustrations, Drawing and Painting are taught to equip the students for both general and commercial advertisement work. Special attention to drawing and painting from life and nature and to figure composition is paid in this section, so that the students may become efficient commercial designers. The period required is 5 years—Elementary course 2 years and Advanced course 3 years. (4) *Draftsmanship*—In this department students are trained to work as draftsmen in the various offices where architectural and geometrical drawings are done. There is always a good demand for skilled men in this line, and the school largely supplies the demand. The period required is 5 years—Elementary course 2 years and Advanced course 3 years. (5) *Lithography*—Artistic work, both in colour and black and white, is done by the students on stone. The students are made to handle and work the machine, and are taught not only to prepare the designs but also to print from start to finish the lithograph they execute. The period required is 5 years—Elementary course 2 years and Advanced course 3 years. (6) *Wood Engraving*—Students are taught to illustrate drawings by engraving on wood. There is always a good demand for this kind of highly artistic skill which serves well for the purpose of book illustrations. The art of etching and also the art of modern wood-cut and Lino-cut in colours have also been introduced in this department. The period required is 5 years, Elementary course 2 years and Advanced course 3 years. (8) *Teachership*—This course can be taken only on the completion of the full course of studies in any of the other departments mentioned above. Only selected candidates are admitted to this department. This course qualifies students for Drawing Mastership of educational institutions. The period required is 3 years.

Started in December, 1925, on a small scale with 30 pupils the Saroj Nalini Industrial School for Women has made a valuable

contribution to the industrial and cultural education of the adult women of Bengal. It has now grown to be *the biggest Industrial School in Calcutta* with over 200 adult women on the roll.

About 1,400 women have been under training in this Institution since its inception. Nearly 66 % of the women who have passed the final diploma examination of the School have been successful in securing suitable employment and are earning Rs. 30/- to Rs. 80/- per month as teachers of Industrial Schools or pursuing a particular industry. Some of the ex-students have organised new industrial institutions on the lines of the Saroj Nalini Industrial School either in Calcutta or in the mofussil.

The increasing demand for agricultural training will be evident from the fact that over 5000 applications for admission to the Dacca Agricultural School were received in January last year and the number of students receiving training in High English and Middle English schools rose to 3,845. Fiftyseven schools conducted agricultural classes in pursuance of the recent policy of the Government. The total area under cultivation in these schools was over 162 acres. Of late District Boards have been taking an increasing interest in agricultural education and many have been granting stipends to students from their districts for training at the Dacca Agricultural School. Recently two new Institutions namely the Basanta Kumar Agricultural Institute in Rajsahi and Daulatpur Institute in the District of Khulna where provision has been made for training 50 students annually. The courses in both the places are essentially practical, and include general agriculture, animal husbandry, dairying and horticulture.

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CHAPTER VIII

RESEARCH ORGANISATIONS AND LEARNED SOCIETIES

RESEARCH ORGANISATIONS

Before the foundation of the teaching departments, both in Science and Arts, in the University of Calcutta, efforts to carry on research work were more or less sporadic.

The Research
activities of the
University of
Calcutta

Eminent Professors like Sir J. C. Bose and Sir P. C. Ray were carrying on researches in the respective branches of their studies in the laboratories of the Presidency College, and the Asiatic Society of Bengal was the only Institution which published systematically researches of individual scholars either European or Indian. The University of Calcutta was the first to give opportunities to the members of its tutorial staff to carry on researches in the Arts and Science subjects. The large resources at her command have enabled her to send out scholars almost every year to different countries in Europe and Asia for special training in various subjects. The University also invited foreign scholars from different countries from time to time not only to deliver lectures on special subjects but also to train research students. These have given an impetus to systematic research work in the University.

During the last twenty years of her activities the University has published a large number of books containing researches in Arts subjects. So far twenty-nine volumes of

Researches in
Arts Subjects

the *Journal of the Department of Letters* containing the results of original researches carried on mostly by the members of the tutorial staff and research students have been published. This journal though not a periodical has been published almost at regular intervals. Books containing

researches in Ancient Indian History, Epigraphy, Fine Arts, Economics. Anthropology, Pure Mathematics, History both medieval and modern, and in English literature have been published. Researches in the classical languages and literature like Pali, Sanskrit and Prakrit, in vernacular literature particularly in Bengali literature both ancient and modern, in philosophy both European and Indian and in comparative philology have been systematically carried on and the large number of publications on these subjects bear testimony to the high quality of those researches. The University is the first to inaugurate Chinese and Tibetan studies in India and has undertaken the publication of a series of studies under the title *Sino-Indica*. The University while introducing the study of various North-Indian vernaculars in the Post-graduate Department has published selections from the literature in these vernaculars for the first time. The Calcutta Review is the monthly organ of the University which not only publishes articles from the pen of the members of the tutorial staff but also informations bearing on the various research activities of the scholars in the University.

A good many members of the staff have by original works of research, established their names in the domain of science, while many others have earned international reputation. The names of the following, among others, who have done signal service to the cause of higher education by their research work, are worthy to be mentioned in this connection: Sir P. C. Roy, Prof. D. M. Bose, Prof. S. K. Mitra, Prof. P. N. Ghosh, Prof. P. C. Mitter; Prof. J. N. Mukherjee, Prof. N. R. Sen, Prof. H. K. Sen, Mr. P. R. Ray, Dr. B. B. Ray, Dr. P. B. Sircar, Dr. G. S. Bose, Prof. S. P. Agharkar and H. K. Mookerjee. Among those who were at one time or other connected with this institution mention may be made of Prof. M. N. Saha, Prof. S. N. Bose, Prof. N. M. Basu, Dr. S. K. Banerjee, Prof. J. C. Ghosh and Sir C. V. Raman. It is not possible to give a list of all the original works of importance done at the University College of Science but it may be mentioned that the story of the series of brilliant investigations by the members of the staff in the various branches of science begins with the discovery

Researches in
Science Subjects

of the famous theory of temperature ionisation by Prof. M. N. Saha. Speaking of this discovery Prof. J. G. Crowther in his book "Short Stories in Science" writes that it is the "first capital discovery by an Indian Physicist in recent years." The research equipments of the various laboratories in the University and the work which is being carried on there have been already mentioned in Chapter VI.

In December, 1869, the establishment of an Association for the Cultivation of Science by the natives of India was advocated

**The Association
for the Cultivation
for Science**

by Dr. Mahendra Lal Sircar, a medical practitioner of Calcutta, in an article in the Calcutta Journal of Medicine. The proposal was

favourably received by the Press and the public and the association was started, mainly through the selfless efforts of Dr. Sircar, in the year 1876 with the avowed object of the Cultivation of Science in all its departments, both with a view to its advancement by original research and to its varied applications to the arts and comforts of life. The present site, covering an area of 3 bighas and 4 cottas of land, was acquired by the Government of Bengal and made over

The Donors

to the Association in 1876 for a sum of Rs. 30,000/-. The Foundation stone of the

new buildings was laid by Lord Ripon, the then Viceroy of India, in 1882, and the laboratory built and equipped in 1890. Amongst those whose munificence brought the Association into existence, are

Rai Behari Lal Mitra Bahadur	...	Rs. 100,000
Maharaja of Vizianagram	...	" 40,000
Mr. Kaly Kissen Tagore	...	" 33,000
Maharaja of Cooch Behar	...	" 30,000
Maharani Swarnamoyee	...	" 8,000
Maharaja of Patiala	...	" 5,000
Kumar Indra Chandra Singh of Paikpara	...	" 5,000
Raja Kumud Narayan Bhup of Bijni	...	" 5,000
Maharaja of Darbhanga	...	" 5,000

The projectors wanted to build the association on the lines of the Royal Institution in London and arranged to provide for lec-

tures of a very superior kind in the various branches of the physical sciences, especially in General Physics, Chemistry, Biology and Astronomy, mainly for students who have already passed through School or College or have otherwise attained some degree of proficiency in these respects. There were also lectures for youths and students possessing a lesser degree of proficiency, while youngmen of talent and education were encouraged to prosecute systematically scientific studies after leaving the college. Public lectures on different scientific topics were also arranged.

This system of public lectures and lectures to supplement the College courses continued to about the end of the first decade of this century, when gradually more and more stress was laid on research.

Its Activities Sir C. V. Raman who was till lately Professor of Physics of the Calcutta University used to conduct all his researches in the laboratories of the Association. The institution is now devoting practically all her resources to research in Physics. Very recently a professorship in Physics after the name of the founder of the Association has been created and a research professor appointed. His chief duty is to devote himself to original research with a view to increase the bounds of human knowledge.

To encourage the work done in the Association the Government of India makes an annual grant of Rs. 20,000/-. The principal condition of the grant is that the money should be utilised to encourage research students from all parts of India to attend the Association. This has throughout been one of the special features of the work of the Association. Students from Assam, Central Provinces, Bombay, Punjab, Madras, Travancore and Cochin State, Hyderabad State as well as from Bengal carry on research work at this place. Not infrequently research workers from Universities outside Bengal are deputed to work in the Laboratory of the Association.

Along with its report the Association publishes in collaboration with the Indian Physical Society the *Indian Journal of Physics* which has now acquired an international status and is

the recognised organ for the publication of research work done by Physicists from all parts of India.

The Association maintains a well equipped scientific library for the use of its members. It received during the year 1936, 102 journals (both Indian and Foreign) in exchange of its Proceedings and journals, and itself subscribed to 26 different scientific periodicals. Sir John Russell, K.B.E., F.R.S., Director, Rotahmsted Experimental Station, Harpenden, was invited in February 1937 to address the Association. Sir John was awarded on the occasion the Joy Kissen Mookerjee Medal.

The Association has a lecture Hall capable of accommodating an audience of 500. The laboratory is housed in a building containing twelve big rooms with an attached well equipped workshop. There is a liquid air plant which enables low temperature investigations to be carried out independently. The laboratory is well equipped for investigations in Raman Effect and Magnetism which are the lines along which researches are being carried on at this place at present.

The Society formerly known only as the Asiatic Society in Calcutta is the oldest literary and scientific society in the East (with the exception of the Bataviaasch Genootschap van Kunsten en Wetenschappen). It was founded in 1784 by Sir William Jones. The Royal Asiatic Society of Bengal Already a master of oriental languages, on his appointment in 1783 as a Puisne Judge of the Supreme Court, Calcutta, one of his first acts on his arrival was to invite the leading citizens of Calcutta to discuss the formation of a research society, and on the 15th January, 1784, the Asiatic Society came into being, with Sir William Jones as President and Warren Hastings as Patron. Its scope was defined in the President's first address in words which were paraphrased in the first number of its Journal as: "the bounds of its investigations will be the geographical limits of Asia and within these limits its enquiries will be extended to whatever is performed by man or produced by nature."

In its early years, meetings were held in the Grand Jury's

room in the Supreme Court. In 1805 Government sanctioned a free grant of the present site at the corner of Park Street and Chowringhee, and a building, designed by Captain Lock of the Bengal Engineers, was completed in 1808, the cost being defrayed by the members. Extensive additions and alterations have since been made but the main structure remains as it was in 1808.

One of the Society's first activities was the publication of the "Asiatick Researches." Twenty volumes of this serial were published between 1788 and 1836 when, owing to financial difficulties, it ceased to appear. That there was a distinct demand for the work produced, however, is borne out by the fact that more than one "pirated" edition was printed. The proceedings of the Society's monthly meetings appeared in a private journal called "Gleanings in Science." The editors of this monthly obtained the permission of the Society in 1832 to use its name in connection with a new Journal, also a private venture. Full control of the Journal was assumed by the Society in 1843. Seventy-four volumes of the "Journal" were published between 1832 and 1904, and 40 volumes of the Proceedings, started in 1865. In 1905 the two were amalgamated as the "Journal and Proceedings of the Asiatic Society of Bengal, New Series," of which 21 volumes have been issued. Another serial, of quarto size, was started at the same time called the "Memoirs of the Asiatic Society of Bengal." for the publication of large articles or those requiring more elaborate illustrations. The volumes of this serial, four of which are still in progress, have been published.

One of the most important of the Society's activities is the publication of the Bibliotheca Indica, a series of texts in Sanskrit, Persian, Arabic and other languages, frequently also with translations. From 1848 till the present day 1,760 fascicules have been published. Huge works like the Persian Akbar Nama and the Ain-i-Akbari, and the Sanskrit Sahitya-Darpana, have been edited and translated in this series, and many of the most famous oriental scholars have contributed. If one was asked to specify a parti-

"The Asiatick
Researches"

Bibliotheca
Indica

cular domain in which the publications in this series have been eminently useful, one might mention that of Buddhist Sanskrit literature.

The Society has published from time to time a large number of miscellaneous work such as catalogues and dictionaries. One of the most important in recent years is S. W. Kemp's Catalogue of Scientific Serial Publications in the principal libraries of Calcutta.

The Society has succeeded in building up a large manuscript library. Its Persian, Arabic, Turkish, etc., collections run to about 5,000 volumes. These were started by

Mss. Library

donations and legacies from early members.

The transfer, in 1835, of a part of the library of the College of Fort William substantially enriched it. In the early years of this century the enthusiastic activity of Sir E. Denison Ross secured financial assistance from the Government of India for many further acquisitions, and the collection is now one of the largest and most important in the world. The arduous but all-important task of cataloguing is now nearing completion. The Persian Mss. have all been catalogued and work on the Arabic collection is progressing rapidly.

The Sanskrit manuscript collection is still larger, about 16,000. Special attention may be drawn to the beautiful Buddhist pictures of the tenth century in the *Astasahasrika Prajnaparamita Ms.* and of the seventh century *Ms. of the Kulalikamnaya* in Gupta characters. This collection also owed many of its early acquisitions to the Library of the College of Fort William, and later additions have been mainly due to the enlightened policy of the Governments of India and Bengal. The resources normally used for search and purchase are being used temporarily for cataloguing. Of the monumental catalogue that was being prepared by Haraprasada Shastri, 4 volumes (of 2,850 pages), *Buddhistic*, *Vedic*, *Smṛti* and *Historical-Geographical*, have already appeared. Others are in active preparation.

The small but picturesque collection of Burmese manuscripts

should also be mentioned. The Society possesses several important manuscript drawings, such as Buchanan Hamilton's famous collection of zoological drawings. Although not, strictly speaking, manuscripts, the collection of Tibetan xylographs may be mentioned here. They include complete Bstan-hgyur and Bkash-hgyur. The Library of printed books is particularly rich in scientific and philological serial publications, including many valuable early sets. Accession lists are published quarterly. A new edition of the Library Catalogue is now in the press.

The Indian Museum owes its existence to the Asiatic Society. In virtue of its renunciation of its claim to accommodation in the Indian Museum building, the Government of India made over to the Society Rs. 1,50,000, which still forms the major portion of its Permanent Reserve Fund.

The Society's rooms are adorned by many works of art. In the centre of the meeting room is a marble bust (by H. Weekes) of the founder, Sir William Jones, and a portrait of him as a boy by Sir Joshua Reynolds. This and many other pictures form part of the Home bequest presented by Brigadier and Colonel Home in memory of their father Robert Home, portrait painter to the king of Oudh, and from 1802 to 1804 Secretary of the Society. The marble busts include two beautiful ones by Sir Francis Chantrey—of W. H. Mill, the author of that remarkable Sanskrit work "Christa-Sangita," and of H. H. Wilson, for many years Secretary of the Society and afterwards first Boden Professor of Sanskrit at Oxford. At the top of the staircase there is a beautiful bronze bust of Csoma de Koros (by B. Hollo), the pioneer of Tibetan scholarship and for many years on the Society's staff; facing this is a bronze bust of Sir Asutosh Mookerjee (by H. I. Youngman), who guided the Society's destinies for many years until his death in 1924. On the landing too, may be seen a famous edict of Asoka (about B.C. 250) whose characters were deciphered by James Prinsep, for many years Secretary of the Society, and to whose memory the public of Calcutta have erected a magnificent "ghat" near Fort William. A marble bust (by H. Weekes)

Works of Art in
the Society

of this first decipherer of the ancient alphabets of India also adorns the landing.

The Council of the Society meets once a month throughout the year. Ordinary Monthly Meetings are held on the first Monday of every month with the exception of September and October. The Ordinary Annual meeting takes place in February. Several public lectures are arranged each winter.

Although the founder of the Asiatic Society in his inaugural address said ".....you will investigate.....their skill in surgery and medicine, and their advancement whatever it may be, in anatomy.....," the Asiatic Researches contain little on these subjects. In 1823 the Medical and Physical Society was founded in Calcutta by John Adam and James Hare and met monthly in the Asiatic Society's Rooms. A portrait of Adam by G. Beechy hangs on the Society's staircase and one of Hare by R. Home in the Eastern bay of its main hall. The Medical Society published its own "Transactions" from 1825-1845. The Medical Section of the Society was not started till 1906, with Lt.-Col. F. P. Maynard as its first Secretary. This section generally meets on the second Wednesday of the month. Papers read are usually published in the "Indian Medical Gazette," the Proceedings of the Asiatic Society containing only short abstracts of them. On the formation of the Calcutta School of Tropical Medicine, the Society, realising that its extensive collection of medical periodicals would be more valuable for research purposes in that institution, consented to their transfer.

The Society fostered the formation of the Indian Science Congress, which held its first session in the Society's rooms in 1914. The Asiatic Society is responsible for the management of the work of the Congress when not in session, and publishes its "Proceedings." The Royal Charter was granted in 1936 and the Society came to be known as the Royal Asiatic Society of Bengal.

The Vangiya Sahitya Parishad was established on the 29th April, 1894, when about thirty gentlemen, who used to meet at

the residence of the late Raja Benoy Krishna Deb of Sobhabazar to discuss topics bearing on Bengali literature, re-constituted themselves on a wider basis into the present Society, under the presidency of the late Mr. R. C. Dutt, I.C.S., C.I.E., with a definite programme for the cultivation and improvement of the Bengali language and literature. During the first six years its meetings were held at the house of Raja Benoy Krishna. The Parishad was then, for a time, removed to a small building in Cornwallis Street rented for the purpose. The present building, built on a plot of land, a munificent gift from the Maharaja Sir Manindra Chandra Nandy of Cossimbazar, was completed and formally occupied by the Prishad in 1908.

The Vangiya
Sahitya Parishad

Aims and
Objects

During the thirty-two years of its existence the Sahitya Parishad has developed along a certain definite line of growth, and has grown into a Society with a four-fold character. *Firstly*, it is a Society which has not only the study and development of the Bengali language and literature for its main object but which also encourages and includes historical, archaeological, sociological, and other scientific studies and researches with special reference to this province within the scope of its investigation. To carry out these objects, it at present undertakes to publish useful original books and translations from the best books in the Sanskrit, Arabic, English or other European languages; and to help meritorious writers; and it watches with interest the educational policy of the Government and the Calcutta University as far as it affects the cause of the Bengali language and literature. *Secondly*, it seeks to collect and preserve old Bengali manuscripts and objects of historical, archaeological, ethnological, literary and scientific interest. *Thirdly*, it tends to foster the general spirit of research among the literary, scientific, historical and philosophical students of Bengal, and publishes the results of their researches through the medium of the Bengali language. *Fourthly*, it affords a meeting ground for its members and other distinguished men for mutual intercourse, and exchange of views on matters of literary and scientific interest.

Ordinarily, the Parishad holds one General Meeting in every Bengali month, when papers previously approved by the Council are read and the reading is usually followed by discussions. The exhibition of objects of literary, historical and scientific interest always forms an interesting feature at these meetings. Besides these meetings special sittings are held for courses of lectures by well-known writers.

**Meetings and
Journal**

The Parishad issues a quarterly journal—the Sahitya Parishad Patrika—which is supplied free of charge to all members and at Rs. 3/- for each annual volume to others. A high standard of research and scholarship is maintained in the selection of articles for the Journal. The Editor is helped by a Publication Committee.

The Library of the Parishad is rightly reckoned as a unique one in the entire province of Bengal, its aim being a complete collection of Bengali works, ancient and modern.

**Library and
Reading Room**

At the end of the last official year, the Library contained more than 50,000 volumes and about 5,000 manuscripts. It is a matter of satisfaction that several public and private Libraries have been incorporated in that of the Parishad, the chief of which are : (1) The Library of Babu Sukumar Haldar; (2) The Library of the Bandhab Society; (3) The Library of the late Babu Kailash Chandra Sinha; (4) The Tibetan Buddhist literature—the Bstan-hgyur and Bkash-hgyur consisting of 1,000 volumes of block-print books in pothi shape; (5) The Library of the late Pandit Isvar Chandra Vidyasagar; (6) The Library of the late Babu Satyendra Nath Dutt, the poet; (7) The Library of the late Mr. Ramesh Chandra Dutt, C.I.E., the First President of the Parishad; (8) The Library of the Sahitya Sabha; (9) The Library of the late Babu Jnan Chandra Chaudhury.

The rescue and preservation of the old literature of Bengal, invaluable, apart from literary considerations, for the solution of many historical and philosophical problems, is one of the primary objects of the Parishad. The Library of the Parishad as it stands at present is the best and richest collection of Bengali Manuscripts in the Province.

**Collection and
Preservation
of Mss.**

The Parishad not only undertakes the collection and preservation of ancient MSS. but also the publication of the most important of these in separate volumes with introduction and notes by well-known scholars.

Publications Several of these publications are unique as regards their script, language and contents. From the list of the books which have already appeared—they number 75, several of them running to more than one volume—it will be clear that besides scholarly works, the Parishad encourages publication of useful literature in all the different branches of knowledge.

The Parishad has been extremely fortunate in procuring a variety of exhibits chiefly of historical and archaeological interest, and thus it has in its possession a very promising nucleus of a Museum chiefly provincial in character, and in a way supplementary to the Indian Museum of Calcutta. Its collection comprises images of the Gandhara, Kushan, Magadha and Bengal Schools. Besides a large number of these images of metal as well as stone, there is a rich collection of rare old coins in its Cabinet. Some of these specimens are quite unique, and among these may be mentioned three bronze images which were described by the renowned Art critic, Mr. William Rothenstein—a former President of the Indian Society of London,—as “impossible to match.” There is a collection of the personal relics of the distinguished literary luminaries of the Province. The *pugree* or head-dress, and the plaster cast of the head of Raja Rammohan Roy are interesting. The Parishad may also veritably be called a National Portrait Gallery, owing to its possession of a very large number of portraits of the distinguished sons of Bengal.

The compilation of a comprehensive etymological dictionary of the Bengali language is a huge task appropriately taken up by the Parishad. The Parishad is in possession of a number of collections of words by various hands, chief among which is that of Pandit Isvar Chandra Vidyasagar, consisting of over 7,000 words. The

An Etymological Dictionary

“Sabdakosha” of Rai Bahadur Jogesh Chandra Vidyanidhi, which is a publication of the Parishad, is the first attempt on scientific lines.

The Parishad has worked on removing the absence of suitable scientific and technical words in the Bengali language. Fairly complete lists of scientific terms in the different branches of Mathematics, Astronomy, Chemistry, Geography, Biology, Medicine and Mineralogy have been published in the Journal.

Translation of Scientific Words

The Parishad suffers from the want of sufficient accommodation in housing the daily growing collection of books, old manuscripts and exhibits for the museum. To remedy this, it was decided to erect a hall which is to be named *Ramesh Bhaban* for perpetuating the memory of the late Mr. R. C. Dutt, the first President of the Parishad. The plot of land on which it is built was the free gift of Maharaja Sir Manindra Chandra Nandy Bahadur. The groundfloor is complete.

R. C. Dutt Memorial Hall

In order to extend the scope of its activities, and to instil into students who are not resident of Calcutta, spirit of research and intellectual activity, the Parishad has affiliated a number of branches in different parts of the country, e.g. at Rangpur, Murshidabad, Rajshahi, Bhagalpur, Burdwan, Gauhati, Chittagong, Dacca, Barisal, Bankura, Krishnagore, Kalna, Benares, and Delhi.

Branches

(1) The Parishad has always moved for better recognition for the Bengali language in the educational policy of both the Government and the University. As a result of these activities the Government of Bengal as well as that of India recognised the importance of the vernacular up to some stage of instruction. As early as 1896, the Parishad fought for a place for the vernacular in the University examinations with some success. The Parishad now

Other Activities

records with great satisfaction that considerable changes have been introduced in the University curriculum in the matter of the vernaculars almost on the lines suggested by the Parishad in 1896.

(2) The Parishad has been entrusted with the task of perpetuating the memory of the renowned literary men of the province, for which there are separate funds raised by public subscription.

(3) There is a Fund for helping the deserving literary men who are in straitened circumstances.

The Bose Research Institute at Calcutta was founded and built by the late Sir J. C. Bose as a place where he and his successors might carry out researches on the phenomenon of life, and its various manifestations. It was publicly inaugurated on November 30, 1917, and has been in active operation ever since. It is a handsome building in Indian style, and has a large auditorium capable of accommodating 1,500 persons, the acoustics of the Hall being almost perfect. No elementary teaching is undertaken; the only object is post-graduate research. Carefully selected scholars are admitted on condition that they devote themselves wholly to the prosecution of research, not for the satisfaction of personal ambition, but in the words of the founder, "in order to realise an inner call to devote one's whole life to win knowledge for its own sake and to see Truth face to face."

Recent investigations carried out at the Institute establish the important generalisation of the fundamental unity of plant and animal life. Investigations of the physiological mechanism of simple vegetable life, has led to the better understanding of the more complex mechanism of animal life. The conducting tissue in the stem and leaf was located by the *Electric Probe*. The physiological nature of the conduction is established by the observation that, both in the plant and in the animal nerve, conduction is affected by changes of temperature, by blocking and stimulating agents, which could not have any such effect upon it were it merely

mechanical. In this simple 'nervous system' there is no central organs such as brain; only nerves of which some have been shown to be sensory, others to be motor. The "Circulatory system" consists entirely of strands of propulsive cells distributed throughout the plant, representing a contractile arterial system.

This advance of knowledge has been rendered possible by the invention and construction at the Institute of numerous automatic recorders of high sensitivity and precision. Besides the *Electric Probe*, the *Resonant Recorder* registers times as brief as a thousandth part of a second, enabling the most accurate determination of velocity of nervous impulse in plants to be made. The *Photosynthetic Recorder* automatically inscribes on a revolving drum the carbon assimilation in plants and exhibits the extraordinarily great increase in its power of assimilation produced by infinitesimal traces of certain chemical substances. The *Magnetic Crescograph* enables movements, which are beyond the highest powers of the microscope, to be detected and recorded. The magnification produced can be carried to fifty million times. The imperceptible rate of growth and its induced variations under chemical or electric stimulants can be instantly measured.

The specific action of a drug can be immediately detected by its action on the pulse-beat of plant and animal. The pulsating organ of the plant was first subjected to the action of the drug; parallel experiments on the animal heart gave results which are extraordinarily similar. The recently invented *Resonant Cardiograph* inscribes the different phases of the heart-beat with unprecedented accuracy, the successive dots in the record measuring time as short as a hundredth part of a second. A very extensive field of investigation has been opened out on the action of extracts from various plants, the medicinal properties of which had not hitherto been suspected. By the employment of some of these the heart-machine can be regulated, enhancing or lowering its activity.

A complete account of these investigations will be found in various books published by Messrs. Longman Green & Co.

Seasonal weather with its variations has always been an important factor in India. From the earliest times of British interest in this country more or less desultory observations were taken at the instance of various officers scattered in different parts of the country. Observations before 1865 have mostly been found to be of little value.

In Calcutta, at the Survey Office in Park Street, systematic observations commenced in 1853. This observatory used to give time-signals to shipping in the port. Interest in the meteorology of India in general, and of Bengal in particular, received an impetus after the great cyclone that visited Calcutta in October, 1864. It was accompanied by a storm wave up the Hooghly. Over 80,000 human beings were drowned or died of exposure, and a great part of the shipping on the river was wrecked. As a result of the awakening of interest in weather phenomena, five provincial systems of observations were evolved during the period 1865-1874. The one for Bengal came into being in 1867, under the Reportership of Mr. H. H. Blandford, who was then Professor of Science in the Presidency College and one of the Honorary Secretaries of the Asiatic Society of Bengal.

About 1874, on the recommendation of the English Meteorological Council a re-organisation of the observational work was contemplated by Government, and Mr. Blandford was appointed the Imperial Reporter. He drew up a scheme for an All-India service, which was launched in 1875. The Alipore Observatory was established as one of the initial items of this scheme. The objects of the Observatory were manifold. Some of them were:—Recording of observations of various meteorological elements, maintaining autographic instruments also for this purpose; providing a central depot for verification of instruments for other observatories, and a training ground for observers. Experimental observations and special investigations were also part of the Observatory's programme of pioneer work, which commenced in 1877, just half a century ago. With the initiation of this institution, observa-

tions at the Survey Office were stopped. A little later when Alipore had its equipment for time determination, the function of dropping the Time-Ball on the Semaphore Tower of Fort William was also taken over from the Survey Office.

Another important project in Mr. Blandford's programme was the inauguration of Daily Weather Reports. The first to

Blandford's
Programme

begin was one in Calcutta in 1877. Observational data were collected by post, and charts were prepared at the central office. The

droughts and famines of 1876 and 1877 made Government anxious for quicker weather information. An advance in this direction was made in 1878 when observations began to be telegraphed in code to weather report headquarters. In addition to the new Imperial organisation of Mr. Blandford, there were also the original Provincial organisations which were working. Among these continued the one for Bengal with the functions of issuing weather reports and managing the gradually expanding storm-signal service. This service, which commenced about 1875 with a nucleus of 5 observatories round the Bay, was substantially augmented and re-organised in 1880. Subsequently, from time to time, improvements were introduced, until, finally, the advent of wireless telegraphy ushered in an era of increasing usefulness to the shipping world.

Thus in Calcutta there were in the late eighties of the last century side by side, firstly, the Imperial section of meteorological work, gravitating round the Alipore Observatory and, secondly, the offices of the Bengal Meteorological Reporter. Sir John Eliot succeeded Mr. Blandford in 1889 and immediately proceeded to consolidate the results of the pioneer work of his predecessor. He handed over the charge of the Alipore Observatory to Mr. Little, whom he appointed as "Second Assistant Meteorological Reporter to the Government of India." The same year the Calcutta branch of the India Meteorological Office and the Bengal Meteorological Office were combined. This combined office served as the principal office of the department, until the Simla branch gradually grew up and assumed supreme position about 1905. In

1904 Sir Gilbert Walker had succeeded Sir John Eliot as the Director-General of Observatories in Simla. In Calcutta there was the Meteorological Reporter to the Government of Bengal responsible for the local weather report and the storm signal service for the Bay of Bengal. There was also the Second Assistant Meteorological Reporter of the central service in charge of the Alipore Observatory. Sir Gilbert amalgamated these two offices and appointed Professor Peake of the Presidency College to this new post of "Meteorologist, Calcutta." Until as recently as 1926, the tradition of the Professor of Physics, Presidency College, holding the part-time post of "Meteorologist, Calcutta" still held good.

In 1922 the Storm Warning duties for the Bay of Bengal were taken over by Simla headquarters from Alipore. Subsequently however, the Government of India decided to re-transfer the Storm Warning service to Calcutta under a wholetime Meteorologist. This decision was given effect to in April, 1926.

The principal activities of the Alipore Observatory and Office at present are :—the maintenance of a series of observations by eye readings and by autographic instruments registering pressure, temperature, wind, humidity, etc.; recording earthquakes by a seismograph; supplying tested instruments to all other Observatories of the department; collecting weather logs of steamers arriving at Calcutta for the study of marine meteorology, publication of the Daily Weather Report for North-East India, supplying time-signals to the Port of Calcutta by dropping Time-balls, and transmitting time-signals by wireless according to the International system twice a day; sending warnings about storms or anticipated heavy rain to a number of railway, public works, police, irrigation and other classes of officers: and, most important of all, the issue of Weather Bulletins and storm warnings by priority telegrams to ports round the Bay of Bengal, and to ships at sea by wireless broadcasts, which are issued at least twice daily, but which, if occasion demands it, are increased to as many as six times during the day and night.

The Royal Agri-
Horticultural
Society of India

Rev. William Carey, the celebrated Baptist Missionary, the Centenary of whose death was celebrated lately, was the founder of the Society. At a Public Meeting held in the Town Hall on the 14th September, 1820 Rev. Carey put forward his suggestions and based on his Prospectus the Society came into being. His ideal has been followed up all these years though the Society no longer carries out any Agricultural work. A sentence from the Prospectus reads "a body of men engaged in the same pursuit, form a joint stock of their information and experience and thereby put every individual in possession of the sum total acquired by them all." It was one of the first aims of the Society to discover conditions existing all over the country and a questionnaire was issued calling for variation of climate, type of soil, crops grown, etc. Replies were published in the Transactions and Journal. Then an attempt was made to improve the crops, indigenous fruits, vegetables etc., and in 1822 premiums were offered for improved kinds of fruit and vegetables while in 1826 a sum of Rs. 500/- was sanctioned for imported vegetable seed for free distribution among Calcutta and Patna growers. This seed came to the Society from Cape Colony, Australia, and Europe and results were satisfactory. Exhibitions were annually held and we read in 1840 that the produce exhibited by Calcutta growers compared favourably with similar products offered in Covent Garden. Peas, it appears, deteriorated very quickly for in 1885 one thousand pounds of a superior variety was imported for free distribution. It may be added that in 1827 premiums were offered for essays on various agricultural subjects and in 1838 Rs. 1,000/- was set aside for procuring seed of every kind of Cotton procurable from South America, the West Coast of Africa, China and Manilla.

Seven years after the founding of the Society a piece of land was obtained in Alipore at the head of Budge Budge Road which was converted into a nursery for grafting and propagating various fruit trees while experiments in Tobacco, Cotton and Sugarcane were carried out at Akra where a plot of land, 500 biggahs in extent, had been acquired. For various reasons these plots were abandoned after a few years but in 1836 six biggahs were obtained in

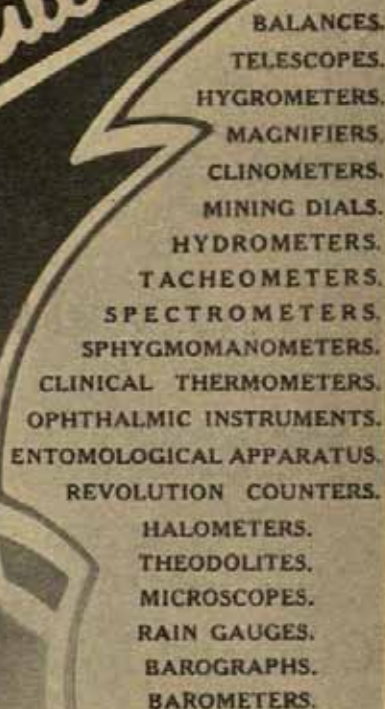
Sibpur near the Botanical gardens chiefly for Sugarcane which was being largely imported from Mauritius. This Sibpur garden was gradually increased till it could contain an Orchard and flower garden and in 1844 a further 25 biggahs was obtained. In the year 1866 Government wished to increase the area of the Botanical gardens and the Society was without a garden till 1879 when the present site in Alipore, only 64 biggahs in extent, was taken over.

In the early years of its existence the Society did practically all the work of the Government Agricultural Department, experiments were carried out by its members in the cultivation of cereals, fire, dye, silk etc., and a reference to the Dictionary of Economic Products of India will show those abbreviations which evidence the value of the Society's work. Branch Societies sprang up in various cities and though many failed to keep alive after the retirement of some keen workers a few have given rise to Horticultural Societies and Government Gardens.

When the Government relieved the Society of all Agricultural work in 1900 more time was given to fruit and flowering plants and consignments from abroad were of frequent occurrence. After acclimatisation and propagation the stock was distributed to members.

Though originally of quasi-government form, the Society, it should be understood, is supported by members who in exchange for a subscription receive certain privileges of free plants and seed etc. It would be well to remark in passing that though the Society has had the honour of being a distribution centre for the majority of plant beauty one sees in Indian gardens, it has also the privilege of having introduced hybrids of trees, shrubs and bulbs. In 1892 the first Canana and Amaryllis hybrids were reported. From 1902 other plants yielded to the hybridisers touch and Anthurium, Antigonon, Barleria, Begonia, Bauhinia, Brownea, Bougainvillea, Cassia, Croton, Crinum, Cooperanthes, Dracaena, Dombeya, Ixora, Hedychium, Lagerstroemia, Pancratiun, Plumeria, Tecoma, Tithonia and Zephyranthes have all been enriched by cross-bred seedlings. Sporting, which cannot be claimed as actually being brought about by human agency, has also produced many remark-

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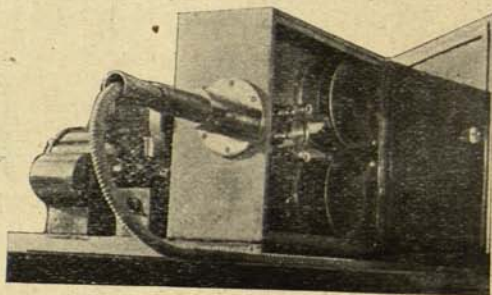
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able foliage and flower variations, and these have been discovered by the Society and sent out.

LEARNED SOCIETIES

In August, 1908 a circular letter over the signature of Mr. Gaurisankar De, Mr. C. E. Cullis, Mr. Jnansaran Chakravarty and Mr. Phanindralal Ganguly was sent out to persons interested in Mathematics in Calcutta and outside, proposing to start a society to be named the Calcutta Mathematical Society in Calcutta, and enquiring whether the addressee would be willing to join the society. The objects of the society were stated to be among others, "to foster and encourage the study of Mathematics in all its branches amongst the various sections of the people of India, to promote the spirit of original research amongst the pupils and professors of Educational Institutions, as well as amongst gentlemen interested in the study or teaching of Mathematics by arranging for periodical meetings at which papers on various branches of Mathematics should be read and discussed and subjects connected with the spread of mathematical education in the country considered and to publish periodically a journal of the Society containing in brief an account of the proceedings of the meetings held and the papers accepted by the Society and read before it." The replies to this circular letter being favourable the inaugural meeting of the Calcutta Mathematical Society was held at the Senate House, Calcutta, on the 6th September, 1908, at 4 p.m., under the presidency of the Hon'ble Mr. Justice Asutosh Mokerjee in which it was resolved "that the Calcutta Mathematical Society be constituted of the gentlemen who have already signified their intention of becoming members, and of such other gentlemen as may in future become members according to the constitution to be settled hereafter." A provisional Committee was appointed to prepare a draft constitution to be discussed and adopted at a general meeting. Thus was started the Calcutta Mathematical Society and the late Sir Asutosh Mookerjee was elected the first President of the Society. The first original paper

Calcutta
Mathematical
Society

was read before the Society at its ordinary meeting held on the 23rd January, 1909, and the first Bulletin of the Society containing original contributions from members came out in April, 1909. Four issues of the Bulletin constituting one volume were published in course of one year and this practice has been continued upto this day. The publication of the Bulletin has proceeded uninterruptedly since its first appearance. This institution of a Mathematical Society together with its journal in Calcutta has greatly stimulated the Mathematical activities in this part of the country and the Society counts among its ordinary members many who by their researches have obtained international reputation.

After the death of Sir Asutosh Mookerjee in 1924, Professor Ganesh Prasad, Hardinge Professor of Higher Mathematics, Calcutta University, was elected President of the Society, an Office which he filled till his death in 1935. The Society elected Professor Syamadas Mukherjee as the next President.

In the year 1935 the constitution of the Society was changed. The Council, which has the management of all the affairs of the Society, subject to the control of the General Meetings of the Society, was enlarged, with a provision for compulsory retirement of the Office-bearers and other members of the Council at the end of three years. According to the present constitution the Council consists of a President, five Vice-Presidents (of whom at least one should be a non-resident member), and twelve other members (of whom at least two should be non-resident members). At present Mr. B. M. Sen, Principal, Presidency College, Calcutta is the President of the Society. In the existing Council, however, there are two non-resident Vice-Presidents and six non-resident members. The Office of an Editorial Secretary was created to look after the publications of the Society. The election of the Council and of the Editorial Secretary, who is an ex-officio member of the Council takes place annually.

The Society maintains a good library of its own, containing about 3000 volumes, situated in the University College of Science and Technology, Calcutta, which gives every facility for work, to the members as well as to persons interested in the study

and research in Mathematics. The Society has published 29 volumes of the Bulletin. All the Bulletins of the Society are printed free of charge by the Calcutta University Press.

The Mining and Geological Institute of India owes its inception to Mr. W. H. Pickering, the head of the Department of Mines in India from 1904 to 1907. He was encouraged from the commencement by the able assistance of Sir T. H. Holland who was at that time the Director of the Geological Survey of India. The preliminary meeting was held on the 10th November, 1905, Sir T. H. Holland was nominated as President and Mr. W. H. Pickering as Honorary Secretary (pro tem). The inaugural meeting was held on the 16th January 1906 at the headquarters of the Chota Nagpur Mounted Rifles, Asansol, Bengal, in the presence of His Excellency Sir Andrew Fraser, Lieutenant-Governor of Bengal. The Institute was registered in 1909 under the Act of 1882.

The scientific objects for which the Institute was established were to promote the study of and encourage and assist all branches of mining, geology, metallurgy and engineering in India. Since its inception 32 volumes of the Transactions, including 94 parts, have been published. The range of subjects discussed is remarkably wide: Economic geology, coal mining, all forms of metal mining, salt mining, mica mining, quarrying of building stones, slates, limestones etc., metallurgy, fuel research, water conservation, ceramics, oil technology and a host of subjects connected with the three main professions with which the Institute is primarily concerned. Meetings are held for the reading of papers and visits to mining, geological and metallurgical places of interest throughout the year, usually about once a month, whilst the Annual Dinner of the Institute, held usually in January, is one of the events of the Calcutta social season.

The headquarters of the Institute is at present housed in the office of the Geological Survey of India, Calcutta. There are, in addition, two other principal centres of activity, one in the Coalfields with an Honorary Local Secretary stationed in Dhan-

bad, and the other in Southern Chota Nagpur with an Honorary Local Secretary stationed in Jamshedpur. There is now provision in the Institute's Articles of Association for opening branches further afield whenever it becomes advisable to do so.

At an Extraordinary General Meeting held in October, 1937, it was resolved that the name of the Institute be changed to Mining, Geological and Metallurgical Institute of India, and sanction of the Government of Bengal to this change is now awaited. The proposed addition of metallurgy to the title has become necessary in view of the increased number of metallurgists in the list of members and the importance which metallurgy has now assumed in India's industries. At this Extraordinary Meeting the objects of the Institute were slightly extended and the additions await sanction of the High Court. The additions in the objects cover several normal activities of the Institute which are not perhaps legally covered by the present Memorandum of Association, and will enable the Institute to take up matters of importance to the welfare and protection of the mining and metallurgical industries and those engaged therein.

The Articles of Association were also altered at the same Extraordinary Meeting to raise the status of membership and to increase the efficiency of administration of the Institute's affairs.

In the year 1920 the Anthropological Society was founded as a club under the kind patronage of the late Sir Asutosh Mukherjee. The members of the club met from time to time to discuss matters relating to Anthropological research and to read papers. It also extended its welcome to foreign scholars who came to Calcutta. Notably among them are Prof. E. Von Eichstedt, Dr. E. S. C. Handy, Prof. C. Tauber of Munich, Dr. Boulnois and Dr. Meinhard of the Volkerkunde Museum, Berlin. In the year 1934 the club was formally re-constituted as the Anthropological Society of the Calcutta University.

The object of the Society is to cultivate and promote the study of primitive people and in general to encourage research

work in Anthropology. Regular meetings are held to read and discuss paper of Scientific interest, and lectures on interesting topics are also arranged. The funds of the Society do not permit the publication of the researches carried out by the members of the Society. They have been published independently either in the form of books or bulletins from time to time.

The administration of the affairs of the Society is entrusted to a council consisting of the President, Hony. Secy. and Treasurer, and Hony. Asst. Secy., elected annually. An ordinary meeting is held each month in which original papers are read and discussed. All the meetings are held in the Anthropological Seminar 35 Ballygunj Circular Road, Ballygunj (Palit House).

The Society was founded in 1924 to fulfil the following objects:—(a) To promote and encourage the study of Geology, Mining and Metallurgy and to facilitate the meeting of persons engaged in the pursuit of Geology, Mining and Metallurgy in India, (b) To collect, publish and distribute information relating to Geology, Mining and Metallurgy and the establishment and development of Indian concerns connected therewith. (c) To protect the interests of persons interested in Geology, Mining and Metallurgy pure and applied in India.

The Geological,
Mining and
Metallurgical
Society of India

The Society publishes: (a) The Quarterly Journal containing only original articles on Geology, Mining and Metallurgy and allied sciences. Nine volumes have so far been published. (b) Bulletins containing discussions, reviews, symposium etc. on important subjects of general scientific interest and specially with regard to mineral industry of India. The Society holds monthly meetings for reading and discussion of original papers on geology, mining and metallurgy and allied sciences. The Society has also established the following centres in India to organise meetings and discussions and similar other activities to be carried out by the local members: (1) Bangalore; (2) Madras; (3) Poona; (4) Hyderabad (Deccan); (5) Benares; (6) Dhanbad; (7) Asansol; (8) Digboi; (9) Rangoon; (10) Rajputana;

(11) Jamshedpur. The Society arranges many excursions to various industrial centres and factories and to places of geological, mining and metallurgical interest with a view to afford opportunity to the members to gather experience. The Society has started a Library which is growing by receiving a large number (about 100) of foreign scientific periodicals in exchange. The Library is housed at present in the Geology Department, Presidency College, Calcutta. Members have free access to the Library. The Society receives invitation from time to time to send its representatives to the various International Conferences and also to Government committees on geological, mining and metallurgical interests in India. The Society is also requested by various learned bodies to express its opinion on certain matters relating to Geology, Mining and Metallurgy. The registered office of the Society is at present located in the Geology Department, Presidency College, Calcutta.

The Indian Psychological Association, an all-India Association, was started in 1925 with the following aims in view, (a) co-ordination of psychological research; (b) publication of psychological works in English and the vernacular languages and the translation of existing foreign works; (c) publication of a journal; (d) organisation of lectures and scientific discussions and (e) such other items as may be determined from time to time. The Association is responsible for the publication of a quarterly journal, the *Indian Journal of Psychology*. The first issue of the Journal appeared in January, 1926. The Journal has been publishing papers read at the various sessions of the Indian Science Congress as also others contributed by many Indian and foreign psychologists e.g. Pieron, Ferenczi and Flugel. It has secured a place among the other international journals of its kind. Besides the task of publishing the Journal, the Association organises public lectures and scientific discussions. It is rather handicapped for want of sufficient funds. It is at present located at the University College of Science, 92, Upper Circular Road, Calcutta.

The Indian Psycho-analytical Society which is an all-India organisation and is affiliated to the International Psycho-analytical Association, was established in 1922. The object of the Society is the cultivation and furtherance of the Science of Psycho-analysis as founded by Prof. Sigmund Freud by (a) scientific dis-

Indian Psycho-analytical Society

cussions, (b) providing facilities for original work, (c) organising lectures and (d) making arrangements for translating into English and vernacular the important works of psycho-analysis. The management of the Society is in the hand of a Council consisting of the President, Secretary and the members elected at the Annual General Meeting. Under the existing rules of the Society none can be a member unless he has been psycho-analysed but can be an Associate member. The associate members enjoy all the privileges as the members do, except the right of voting. All the members do not enjoy the privilege of practising psycho-analysis. Only those members who have fulfilled the conditions laid down by the Indian Society and the International Association can do so in India.

The Society has a circulating library for the use of its members of both categories. The Society has no independent organ of its own. Some of the papers read in the Society have been published in the Indian Journal of Psychology, International Journal of Psycho-analysis, Psycho-analytical Quarterly of America and the British Journal of Medical Psychology. To impart training in psycho-analysis, the Society started the Indian Psycho-analytical Institute. The Society is at present considering the scheme for starting a Psycho-analytical Clinic in Calcutta. The Society is located at 14, Parsibagan Lane, Calcutta.

Some ten years ago it occurred to a number of chemists working in various laboratories at Calcutta that if a technical association particularly devoted to applied and industrial chemistry could be organised in this country, it would serve a highly useful purpose. They were aware of the existence of the Indian Chemical Society and recognised the valuable work

Institution of Chemists (India)

carried out by it, but they felt that to a large number of chemists engaged in the various industrial and works laboratories of the country the work of the above pioneer society was not of sufficient interest and that the time was ripe for the foundation of a sister association which would possess a definite industrial bias. The inaugural meeting was called towards the end of 1927. The Society was called "the Institution of Chemists (India)."

The Institution began to function early in 1928 and within a short time was registered. The headquarters were located at Calcutta, and although the possibility of the opening of local branches in due course was visualized, arrangements were made for the holding of ordinary meetings in that city. The response received from industrial chemists engaged in various parts of the country was on the whole satisfactory, and within the first two years of the life of the Institution the membership practically reached a figure of 200.

Main activities of the Institution.—At the time of the inauguration of the Institution a number of possible activities were visualized, but it was realized that it would be a considerable number of years before the entire potential usefulness could begin to manifest itself. Among the activities introduced in the early days were the holding of ordinary meetings for the purpose of reading papers on industrial subjects and the organisation of visits to industrial works of importance. The papers read at such meetings and discussions thereon are published periodically in the "Proceedings of the Institution." Visits to industrial works have evoked much interest among members. These activities have been continued, but latterly the Institution has taken an interest in the employment of chemists by maintaining a register and inviting firms, etc., to utilize its services in this direction. It has also acted as a medium of communication between the chemical profession and Government and other public bodies in matters of chemical interest. The year 1937 saw the opening of the first local branch of the Institution with its headquarters at Ranchi. It is known as the Bihar Branch and will cater for the industrial areas of the province of Bihar including Chota Nagpur.

The history of the organisation has to be traced to the enthusiasm of Miss Cornelia Sorabji and Capt. Stedman, M.C., the Hony. Secretary for All-India Mental Hygiene Association. The former was specially interested in Juvenile Court work and the latter in child guidance. The branch, however, formally came into being in November, 1929, with Lt.-Col. N. S. Simpson, I.M.S., as President and Miss Sorabji, as Hony. Secretary. A new constitution for the branch was accepted in 1930, and that year it took part in the first International Congress on Mental Hygiene at Washington. It collected valuable information from all over India in response to a questionnaire on mental hygiene sent by the Congress and the returns were very much appreciated.

**The Association
for Mental
Hygiene**

The activities of the Association were originally confined mainly to propaganda, and dissemination of the ideas of mental hygiene through public lectures and study classes. The public lectures under it have always been delivered by persons having specialised experience and knowledge of particular aspects of mental hygiene.

One of the Committee members of the Association, Mr. G. Mukherjee became interested in the education of the mentally defective children and his efforts have led to the establishment of a Home for Mental Defectives. Thanks to a donation from the Calcutta Turf Club, the branch could start in 1935 a free Psychological Clinic as an out-door department of the Carmichael Medical College at Belgachia which is open at present two days in the week and is under the charge of Dr. G. Bose. The Hon. Secretary attends to all sorts of psychological enquiry and gives advice on problem children etc. The Clinic has become very popular and about 800 patients have come for treatment within the last two years and a half.

One of the important aspects of the work of the branch is organisation of lectures for parents and teachers on Child Psychology. These have become very popular and invitations for delivering such lectures have recently come from distant parts of India.

It has also distributed leaflets and pamphlets for popular education. It maintains a small library for its members. It acts in co-operation with other public bodies like Bengal Presidency Council of Women, Y.M.C.A., Juvenile Court, Reformatory School, Department of Experimental Psychology, etc.

The Indian Statistical Institute, which is an All-India society, was founded in 1931 to promote the study of statistics in India.

The Indian Statistical Institute The headquarters are in the Statistical Laboratory, Calcutta, and there are local Branches in Poona, Mysore, Bombay, and Madras.

There is (1) a standing Technical Committee, (2) a Research Committee, and (3) an Official Statistics Committee to suggest improvements in official statistical publications. A comprehensive scheme for the award of Statistician's Diploma and Computer's Certificate on the results of professional examinations has been inaugurated and is being worked with the active co-operation of leading statisticians in India and abroad. Colloquiums and seminar meetings are held regularly in Calcutta and also at the local Branches, and public meetings are organized from time to time for the discussion of subjects of statistical interest. The Institute is affiliated with the Royal Statistical Society of London as a corporate member.

Library and Laboratory—The collection of books on statistics is unique in India, and the library contains reprints of rare classical papers, complete sets of statistical journals, important books on statistical theory and methods, and a large number of mathematical and statistical tables. There is an extensive collection of current periodicals consisting of several hundred of publications from all over the world. A number of important international bibliographies are also available. The Laboratory is equipped with a large number of modern calculating machines, and various accessories and devices. A staff of trained computers is also available for reduction of statistical data.

Grants—Research grants are received from the Government of India and the Imperial Council of Agricultural Research. Some of the provincial governments such as Bengal, Bihar and

Orissa, and Indian States like Hyderabad and Indore have also sanctioned earmarked grants from time to time.

Statistical Enquiries—A large number of enquiries relating to the application of statistical theory to practical problems are attended to every year from all over India, and in some cases also from abroad. These cover a very wide range of subjects such as flood, irrigation and river physics; meteorology; biometry; medical and public health; psychology and education; commerce, industry and economic problems of various kinds; and agricultural investigations including field trials, animal nutrition, plant physiology, entomology, control of pests etc.

Advanced Study and Training—The Institute gives special courses of training in statistics to officers who are sent on deputation by government departments, Indian States, Universities and other recognised scientific institutions. During the last four or five years over seventy officers came to Calcutta for this purpose from different parts of India. Besides such special courses of training a large number of officers and research workers come to the Statistical Laboratory from outside Calcutta for short periods for personal advice and discussions.

Statistical Researches—With the help of the grant from the Government of India a small staff is maintained for theoretical researches, and systematic work is being done on the mathematical theory of exact sampling distributions, measures of group divergence, certain special types of frequency distributions etc. On the applied side the subjects for study include flood and irrigation problems, maternity statistics and infant mortality, nutrition and blood-pressure surveys, anthropometry, intelligence and vocational tests, technique of examinations, application of statistical theory to agricultural problems, sylvicultural experiments, and economic questions of various kinds. The method of random samples is also being used extensively for large scale field surveys such as a consumption study of five hundred families in Calcutta, a nutrition and economic survey of about one thousand Bengali families, a survey of the handloom weaving industry in which in-

formation was collected from about ten thousand weaving families in thirteen districts in Bengal etc.

Sankhya: The Indian Journal of Statistics is supplied free to all members of the Institute. Two volumes have been completed, and three parts have been issued of the current volume. The scope of the journal covers all subjects which lend themselves to objective treatment with the help of figures, and contributions from outside India are published regularly. Articles are also published on the mathematical theory of statistics as also tables for computations which are of use to workers in all branches of statistics. One special feature of *Sankhya* is the Bibliography Section, giving comprehensive abstracts of current Indian official statistical publications properly classified according to subjects, and of important articles selected from the extensive collection of periodicals available in the library, and of reviews of books, monographs, special reports, and memoranda received from numerous sources and important publishing houses.

The Calcutta Geographical Society, inaugurated in July, 1933, by a small band of workers, has been founded with the object of supplying the need of a central organisation for the increase and spread of geographical culture in Bengal. Its aims and objects are :—(i) to promote and diffuse Geographical knowledge; (ii) to foster a spirit of adventure and research in Geographical matters; (iii) to safeguard the interest of the Science of Geography and of persons interested in Geography; (iv) to encourage and help persons engaged in the work of Geographical research and the spread of Geographical knowledge; (v) to secure for the subject its legitimate place in the curricula of the University.

The Society is trying to attain these objects by organising geographical lectures and exhibitions, publication of a journal, encouragement of geographical research and travel and the convening of geographical conferences. The Society has been fortunate in enlisting the support of a number of distinguished men as patrons

and has an efficient body of workers as its Council of Management.

Since September 1936, the Society is publishing a journal "The Calcutta Geographical Review" in co-operation with the authorities of the Calcutta University. Even in its infancy the journal has been able to attract international attention.

Besides organising regular public lectures and publishing an well illustrated journal, the Society has been taking active steps for the improvement of the teaching of geography and for the proper recognition of the subject in the curricula of the University. The University has already made adequate arrangements for the training of school teachers of geography and is soon expected to institute a degree course in geography.

A large number of physicists resident in different parts of India having felt the need of forming a society for the furtherance of Physical Science in this country, **Indian Physical Society** decided to start an Indian Physical Society which was registered on the 29th June, 1934.

The inaugural meeting of the society was held on 29th September, 1934 in the hall of the Indian Association for the Cultivation of Science, Calcutta. At its first annual meeting held in January, 1935, it was decided to fix Calcutta as the Head Quarters of the Society for a period of three years. The administration and management of the affairs of the society is entrusted to a Council composed of the President, four Vice-presidents, a Treasurer, a Secretary and twelve other members representing different active centres of Physical Research and studies in India. The total number of fellows is nearly 120 and this includes eminent physicists from all parts of India.

The Society holds regular quarterly meetings where papers contributed by Fellows are read and discussed. It is collaborating with the Indian Association for the Cultivation of Science in publishing the Indian Journal of Physics and arranges speedy publication of papers communicated to the Society in that journal. The Fellows of the Society on payment of their membership subs-

scription to the Society, receive the Indian Journal of Physics free. The Society also arranges public lectures to be delivered by specialists on recent developments of the various aspect of Physics and also organizes symposiums on recent advances in Physics.

In carrying out the above programme of work the Society acts in close collaboration with bodies like the National Institute of Sciences, The Indian Association for the Cultivation of Science and the Indian Science Congress. In its meeting held in 1936, the Mathematics and Physics section of the Indian Science Congress recognised the Indian Physical Society as the body representative of the Physicists in India.

The Indian Chemical Society came into existence in 1924 as a result of several meetings held during the Science Congress weeks from 1922 to 1924, due chiefly to the efforts of

The Indian
Chemical Society

Sir P. C. Ray, late Dr. E. R. Watson, Dr.
J. N. Mukherjee, Dr. J. C. Ghosh, Dr. N. R.

Dhar, Dr. S. S. Bhatnagar and several other leading chemists of India. The Annual General Meeting of the Society is held in conjunction with the annual sitting of the Indian Science Congress. It has thus been possible to establish personal contact among its Fellows scattered all over India. The object of the Society is to promote the cause of chemical science and allied branches of learning by holding meetings to read and discuss papers of scientific interest, by arranging lectures on broad scientific topics, by co-operating with other organisations having similar objects and, specially by publishing original memoirs in chemistry and allied branches of science in the Society's organ, "The Journal of the Indian Chemical Society."

The administration of the affairs of the Society is entrusted to the Council consisting of the President, Vice-Presidents, Hony. Secretary, Hony. Treasurer and Hony. Editors and twenty ordinary members of the Council elected by votes from among the Fellows by ballot. During the first four years of its existence (1924-27) four issues of the journal of the Society were published annually. During 1928 and 1929 six issues were pub-

lished. The number of issues published annually was increased to ten from 1930. Since 1934 the Society has been publishing twelve issues. The adjudication of the publishable matter is entrusted to a Publication Committee consisting of ten members elected annually.

The Society has built up a fairly comprehensive reference library consisting of valuable Journals of chemical and allied sciences and dissertations on scientific subjects received in exchange for its own Journal. There are nearly 1200 bound volumes of Journals and more than 1500 dissertations. The Society is in terms of exchange with more than 145 scientific publications issued from practically all parts of the world. Since 1936 the Society has undertaken to supply to its Fellows at a nominal cost typewritten extracts or transcriptions from Journals and from other reference books that are in possession of the Society or are available in Calcutta. The Society has got at present three local branches, namely at Lahore, Bombay and Madras.

Early in the year 1934, it was felt by research workers in Calcutta that a local biochemical society would be of great value. It would provide a platform where people interested in Biochemistry and working in different research institutions can meet, present papers, participate in symposia and exchange views on biochemical problems. With this idea, a meeting was held on the 2nd. June, 1934 at the Bengal Chemical and Pharmaceutical Works under the Presidency of Prof. J. C. Ghosh of Dacca University. The meeting decided in favour of the formation of a biochemical society. The society was formally inaugurated on the 6th. July, 1934.

Since its inception, the Society has been holding eight to ten meetings every year. The proceedings of the Society during a year are published at the beginning of the next year as the "Proceedings of the Biochemical Society, Calcutta." In this report are included short abstracts of the papers read, the names and addresses of all the members and the personell of the executive committee as well as the outgoing secretary's report. The papers read during the last

three years cover a fairly wide range embracing problems concerning vitamins, nutrition, hormones, enzymes, drugs, immunochemistry, bacterial metabolism, etc. At present the total number of members is 51 and the activities of the Society have fully justified the expectation with which it had been started. The meetings attract large number of scientific men of Calcutta who take part in lively discussions. Of even greater importance is the fact that these meetings serve to bring together once every month the various workers working in some twenty or more research institutions and laboratories in and around Calcutta who but for these meetings could only casually meet each other. The Biochemical Society, Calcutta has given a great impetus to biochemical research and its "Proceedings" have already attracted wide attention.

The Indian Science News Association was started in 1935, with the following main objects in view: (i) To popularise and disseminate the knowledge and progress of natural and cultural sciences; and, (ii) To publish journals and books and organise lectures both in English and Vernacular in furtherance of the objects set forth in (i).

Indian Science
News Association

The Association is housed in the University College of Science, 92, Upper Circular Road, Calcutta, through the kindness of the authorities of the University of Calcutta. Uptill now its activities have been primarily concentrated in conducting a monthly journal of science, named, *Science and Culture*, which deals with all branches of natural and cultural sciences and, through its columns, attempts to fulfil the objects of the Association as set forth in (i). The journal is run on a non-profit basis and the costs are defrayed by the funds of the Association raised through private donations, the Life-membership fees and subscriptions.

Sir P. C. Ray is the President of the Association and Sir U. N. Brahmachari, Mr. S. P. Mookerjee, Dr. Bainsi Prasad and Dr. S. C. Law are the Vice-Presidents. Prof. M. N. Saha and Prof. S. K. Mitra are the Hony. Secretaries who are also *ex-officio* editors of "Science and Culture." The editorial Board consists of Prof. J. C. Ghosh and Prof. B. C. Guha in addition to the two secreta-

ries, and functions in collaboration with the Executive Council of the Association.

The editorial office of "Science and Culture" is at 92, Upper Circular Road, Calcutta. The Journal is of a semi-popular nature and is intended for the educated layman as well as the student and teacher of science. It enjoys considerable circulation throughout the length and breadth of the country and also a fair amount of foreign circulation. It receives some 58 journals (24 Indian, 34 foreign), both Indian and foreign in exchange and these are kept in its office for consultation and perusal by the members of the Association and the subscribers. The journal is now in its third year and has thus far published 32 issues.

A society called the Physiological Society of India has been recently started through the efforts of a number of research workers of the Presidency College for higher research in Physiology. The president of the Society is Professor S. C. Mohalanobis. The aims and objects of the Society are stated to be as follows: (i) to promote and organise physiological and bio-chemical studies and researches in India; (ii) to facilitate the intercourse of physiologists, Bio-chemists, medical men, Bacteriologists, Pathologists and other persons interested in the advancement of Physiology and Bio-chemistry; (iii) to disseminate modern physiological and bio-chemical contributions; (iv) to create an interest in Physiology, Bio-chemistry and metrilional problems by publishing pamphlets or otherwise; (v) to arrange for the publication of an Indian Journal of Physiology and Bio-chemistry. The office of the Society is at present located in the Physiological Laboratory of the Presidency College.

As far back as in the year 1900, the necessity of a Medical Club, like other sister institutions of that time, was felt by the majority of the profession in Calcutta and the possibility of founding one, formed the topic of discussion in many a friendly gathering. But

The Calcutta
Medical Club

no definite scheme was formed until Sir Nilratan Sircar (then Dr. Nilratan Sircar) called in his house a private meeting to discuss the question. Several meetings followed and the idea was at last matured. The preliminary meeting of the club was held on the 18th of August, 1901, at 72, Harrison Road, the then site of the Club. The Club is at present situated at 62, Bowbazar Street.

Formerly, the object of the club was the promotion of social and intellectual intercourse amongst gentlemen of the medical profession: I. By providing—(a) Suitable Rooms, (b) A Library and Reading Room, (c) Recreation and Refreshment Rooms and II. (a) Reading of Papers and delivery of addresses and discussion thereon. (b) Exhibition of Cases and specimens with comments, (c) Publication of a Medical Journal and transaction of meetings. The Calcutta Medical Club was duly registered on the 11th day of September, 1908 in the office of the Registrar of Companies under Act VI of 1882. The organ of the club is the *Calcutta Medical Journal*, which is a monthly journal.

The Bengal branch of the Indian Medical Association was started in March, 1931. The present President of the Association is Sir Nilratan Sarkar and its offices are located at 67 Dharamtola Street. The members of the Association regularly meets either to read scientific papers or to hold discussions bearing on medical research. The Association publishes the *Journal of Indian Medical Association*.

The Indian Medical
Association

Amongst other Research organisations should be mentioned *The Indian Radiological Association*, and the *Research Department of the Bengal Chemical and Pharmaceutical Works*, which is the premier Chemical Works in Bengal. The former is located in the Chittaranjan Sevasadan at 148, Russa Road. The latter is called "The Prafulla Chandra Research Laboratory" and is manned by a band of brilliant chemists.

INDIAN MUSEUM

The Archaeological collection of the Indian Museum is the richest in the East. In the Entrance Hall are exhibited some magnificent examples of sculptures belonging to the earliest historic period in India, such as the capitals of the monolithic columns of Asoka and the big statues from Pataliputra and Besnagar. In the gallery to the south of this Hall known as the Bharhut Gallery is exhibited a large number of sculptures of the Sunga period. In the adjoining Gandhara Gallery one finds a fine collection of Graeco-Buddhist sculptures and architectural pieces from Gandhara dating from the beginning of the Christian era to the 3rd or 4th century A.D. To the east of the Gandhara Gallery is the Long Gallery, in the successive Bays of which are arranged in chronological order specimens of sculptures produced by the different schools of art (viz. Mathura, Amaravati and Gupta sculptures), that flourished in India and Indonesia from the beginning of the Christian era to about 1200 A.D. The Moslem Gallery, which is to the east of the Long Gallery, contains a large collection of Arabic and Persian inscriptions, sanads and architectural pieces, mostly from Gaur in Bengal and from Agra. In the New Hall to the south of the Gandhara Hall are exhibited Palaeolithic and Neolithic implements, the implements of the Copper Age and the Chalcolithic objects discovered at Harappa, Mohenjo-daro, and Nal in Baluchistan. Amongst the miscellaneous antiquities of the historical period in the southern half of the New Hall, the most noteworthy exhibit is the huge stone box unearthed from a stupa at Piprahwa. It contained among other objects an inscribed stone casket of the 3rd or 4th century B.C., in which were found the relics of Buddha. The great collection of Indian coins in the cabinet of the Indian Museum is deposited in the Coin Room to the extreme south of the New Hall. In this Room are also preserved among other precious gems and jewels the emerald bowering and cup of the Mughal Emperor Shah Jahan that Nadir Shah carried away from Delhi in 1739.

The Art Section of the Indian Museum was constituted in its present form on April 1, 1911 by the amalgamation of the Art-ware

Court formerly included in the Economic Section of the Indian Museum and the Bengal Government Art Gallery. The amalgamated collection was placed under the Principal, Government School of Art, Calcutta. In 1891, the construction of a new wing to the Indian Museum in Sudder Street was completed and for the first time the collections of Economic Products, Art-ware and Ethnology were housed permanently in this new building and an Art Gallery thus formed in connection with the Indian Museum was opened to the public in September, 1892.

The Bengal Government Art Gallery owes its origin to a hope expressed by Lord Northbrook in 1874 when opening a temporary Fine Art Exhibition in the Museum building that permanent Art Gallery would eventually be established in Calcutta. Sir Richard Temple, then Lieutenant-Governor of Bengal, took steps to accomplish this object by leasing certain buildings and obtaining contributions in the way of works of art. The Gallery was established in connection with the School of Art and was opened on April 6, 1876 by Lord Northbrook.

The New Art Section is divided into three main divisions :—
(1) Paintings, (2) Hard-wares and (3) Textiles.

Under paintings have been displayed all the available collections of old Hindu and Muhammedan water-colour paintings together with a few paintings on ivory and mica. A collection of Tibetan Temple Banners and modern paintings have also been displayed in this Section. Under Hard-wares the following classifications are made (a) Metal wares including brass and copper wares from Tibet, Bhutan, Nepal and from other parts of India, damascend and encrusted wares, enamelled, niello and bidri wares, silver wares, imitation gold ornaments and statuettes from Tibet, Nepal etc.; (b) Stone-wares including marble statuettes, perforated screen, inlaid marble plates, jade book-rest, crystal figure, jade drinking cups and soap-stone tumblers etc.; (c) Glass and earthen wares including porcelains from Tibet, China and

Persia and a collection of glazed, unglazed and painted pottery; (d) Lac and lacquered wares from various parts of India; (e) Ivory figures, fans, mats, boxes etc.; and horn boxes, candlesticks etc.; (f) Leather articles; (g) Papier-mache wares from Kashmir and Persia. (h) Painted wood-wares such as cabinet, boxes, toys etc.; (i) Inlaid wood wares such as boxes, tea-poyes etc.; (j) Wood carvings such as windows, house fronts etc.; (k) Glass mosaic shrine. Under textiles have been exhibited Brocaded Saris, Himrus, Muslins, Shawls, embroidered Nets, Phulkaris, Soznis, printed Fards etc.

The Gallery of this Section of the Indian Museum is situated on 2nd floor of the Sudder Street building and is approached by the visitors from the main building through an overbridge. The collections represent specimens of commercial and industrial interest, chiefly belonging to the Vegetable Kingdom. A selection of the most instructive specimens are exhibited in the Court while a large number of them are kept in the Herbarium or in Stores for scientific study. The collections are arranged in the Gallery under the following headings :—(1) Food and fodder which include cereals, pulses and spices, vegetables, fruits, etc.; (2) Medicine, entirely of vegetable origin; (3) Vegetable fibres and silk; (4) Timber; (5) Oilseeds and industrial oils; (6) Gums, resins, Gutta Percha, rubber, etc.; (7) Dyes, tanning materials; (8) Tea and coffee; (9) Miscellaneous—such as lac, paper manufacture materials, matches, basketry works, Papier Mache works, canes, etc.

During recent years the Gallery has been enriched by fresh collections. Proper show-cases received the food substances such as cereals, pulses, vegetables, edible fruits, etc., while some of the more important indigenous vegetable drugs with their alkaloids or other active principles as manufactured by chemical firms are properly arranged in suitable show-cases showing them through all the stages from the raw materials to the finished products for the market.

Among these the more important ones are the Cinchona from which Quinine is manufactured, opium, Ephedra, Kurchi, Podo-

phyllum, Ipecacuanha, etc. All kinds of vegetable fibres whether used for cordage or for weaving or for other purposes are exhibited in a form which explains to the visitor the source of the individual fibre and its various stages through which it has to go before it is put to the market as finished product. The more outstanding ones are those of cotton, juice, coir, etc. A comprehensive exhibit of silk, as produced in various parts of India, is housed in proper show-cases showing the several stages from the eggs to the finished fibre and cloth. There is a good collection of the more important timbers of India and Burma. They are placed on the wall throughout the staircase. Specimens of oilseeds from all parts of India from a collection which only proves the richness of varieties of vegetable oilseeds produced in the country. All the known Indian vegetable gums and resins are housed in the Gallery showing the varieties that are obtainable in India. Rubber and Guttapercha specimens are also well represented. All the known vegetable dyes and tans of India form a collection which shows where these are obtainable. Tea, as manufactured in several parts of India, is exhibited in a room where the plantation and manufacture of tea are explained by means of photographs and machineries. Specimens of coffee as produced in South India are also housed in the same room. Besides these, lac is exhibited in a case showing the production of lac by the insects on the branches of trees, the treatment of the scraped lac from the earliest stage to the finished products by means of clay models showing even the operations in a factory. Recently beautiful representative specimens with photographs from the Lac Research Institute of Nankum, Ranchi, have been obtained and exhibited in a show-case in the Gallery.

The raw materials for paper manufacture in India with their several stages of treatment to produce different grades of writing paper, papers for packing, cardboard and papers used for other purposes are shown in one of the central show-cases which also contains in another portion a comprehensive exhibit showing the manufacture of safety matches including the raw materials found in India used for manufacture of boxes and splints, etc. There is also a Herbarium attached to the Industrial Section containing specimens representing the economic plants from all parts of India.

There is also an up-to-date Library attached to the Industrial Section, containing important publications, relating to the various raw materials and industries originating from the vegetable kingdom. The Library also maintains a valuable supply of current journals. The literature available on indigenous medicinal plants is probably the richest in India.

The geological collections are contained in four galleries. On the ground floor, to the left of the entrance hall, i.e., on the north side of the hall, the vertebrate fossil gallery is first entered. On the far side of this, to the north, is the meteorite gallery, and leading off from this again, to the east, and on the north side of the quadrangle, are the mineral and rock collections in one large gallery. On the first floor, immediately above the mineral and rock gallery, is the invertebrate fossil gallery. Over 300,000 specimens, belonging to the Geological Survey of India, are contained in these four galleries, and more than 60,000 are exhibited. This is the only space available to the Geological Survey for storage, so that these galleries have to serve a dual purpose, i.e. for exhibition and for storage of reference specimens. Under these conditions it has been impossible to avoid overcrowding and this geological collection, one of the finest in existence, is not displayed under the attractive conditions which it merits. However it is hoped that this congestion will be reduced by re-arrangement. It is also hoped that further space may be available later.

The nucleus of these collections was derived from the Museum of the Asiatic Society. Soon after the foundation of the Geological Survey of India, in 1856, the collection of minerals and fossils in the Museum of Economic Geology was transferred from the Society's room to the then head-quarters of the Survey in 1, Hastings Street. The Museum of Economic Geology had been amalgamated with the Geological Survey previously and in 1876 the combined collections were transferred to the present building. As the cadre of the Geological Survey grew in numbers the rate at which acquisitions have accrued has increased correspondingly, and some 3,000

specimens are now added annually. To H. Piddington, the Asiatic Society's Curator, to Thomas Oldham, the first Superintendent of the Geological Survey of India, and in their present home to F. R. Mallet, R. Lydekker, O. Feistmantel, and T. H. Holland, the main credit is due for the arrangement of the collections, an arrangement which has been scarcely disturbed during the last 40 years. No apology is needed to accompany the statement that a complete overhaul of this wonderful collection is long overdue, and is now being undertaken.

The vertebrate fossil gallery, usually referred to as the Siwalik gallery, contains in its confined space some 15,000 specimens, of which over 3,000 are displayed on the crowded shelves. Most of the specimens have been collected from that rich storehouse of Tertiary vertebrates, the Siwalik beds along the foothills of the Himalaya.

In the central row are placed the larger mammals, the more imposing of these being *Stegodon ganesa*, a large extinct Siwalik elephant, at the northern end of the hall, and *Megatherium cuvieri*, a South American giant sloth, at the southern end. The remains of other interesting animals in this row are the four-horned extinct giraffes *Sivatherium* and *Bramatherium*, and the *Dinotherium*, an early ancestor of the elephant. In the show cases along the eastern wall are exhibited the remains of extinct elephants, rhinoceros, oxen, crocodiles, turtles, etc. The show cases along the western wall contain remains of anthracotheres, marsupials and anthropoids, while the two central rows of show cases contain mostly jaws, bones and teeth of various mammals and reptiles.

Entering the meteorite gallery the three large central show cases at once command attention. These contain the largest collection of meteorites in Asia, and it is one of the most important in the world. It comprises nearly 500 separate falls. On account of India's large area and dense population, many meteorites have been actually seen to fall in this country. By exchanging fragments of meteorite falls for those from other countries, this

fine collection has been built up at little expense. Several of the rare iron-meteorites are on view. Exigencies of space compel the inclusion in this gallery of specimens illustrating structural geology and certain economic exhibits such as of coal and manganese. Maps illustrating phases of Indian geology are displayed around the walls. From the meteorite gallery the visitor enters the large gallery containing the rock and mineral collections. The rearrangement of this gallery is now in progress.

The rock collections are more comprehensive than spectacular, comprising some 25,000 specimens of which only 3,700 are exhibited. Nearly 25,000 thin sections of these rocks are available for study. On the verandah outside this gallery will be found specimens of Indian building stones, as well as part of a large fossil tree, 72 feet long, found in rocks of the Raniganj series. The mineral collection contains specimens from all over the world, but mainly, of course, from India. The array of zeolites, most of which were collected during railway construction in the Western Ghats, is probably unsurpassed in size and variety anywhere. Some excellent specimens of Indian mica are also exhibited. The invertebrate fossil gallery contains a representative collection of stratigraphically arranged fossil invertebrates and plants, discovered in the various rocks of India. They include the interesting marine fossils from the Himalayas, Central India and the Salt Range. A rich collection of the plant fossils from the Gondwana rocks of India is also exhibited. In addition, large collections of animals and plants from various parts of the world have been systematically arranged in the large wall cases and constitute the Klipstein collection. Two interesting vertebrates, *Colossochelys atlas*, a giant turtle from the Siwaliks, and *Megaceros*, an Irish elk, have been exhibited here, for want of space in the Siwalik gallery.

The Zoological Collections of the Indian Museum may roughly be divided into two groups: (1) the Collections exhibited in the public galleries of the Museum, and (2) the Reserve Study Collections. These consist of (1) almost the entire collections which were transferred to the Indian Museum about 1870 from the Indian

Zoological and
Ethnographical
Sections

Museum of the Asiatic Society of Bengal, (2) the collections made by the naturalists attached to the various military, punitive or boundary expeditions to the countries lying on the borders of India, (3) the marine collections made by successive Surgeon-Naturalists on the Royal Indian Marine Survey Steamer *Investigator*, (4) the natural history specimens presented to the Museum by private donors, (5) collections acquired by purchase, and (6) the extensive collections made by the officers of the Natural History Section of the Indian Museum up to 1916 and since that date by the officers of the Zoological Survey of India.

There are 6 public galleries in the Indian Museum under the Zoological Survey of India. These consist of a very extensive and up-to-date Invertebrate gallery, excluding the Insects and Arachnids, the latter are exhibited in a small ante-room generally known as the Insect gallery. Both these galleries are on the ground floor of the Museum. On the first floor the Vertebrates are exhibited in four galleries: (1) a small Fish gallery, (2) Amphibian, Reptilian and Bird gallery with a large centre case, near the entrance of the Fish gallery, containing rays, (3) the Large Mammal gallery, and (4) the Small Mammal gallery. In these galleries representatives of almost all types of animals of the groups found within Indian limits are exhibited; in special cases foreign animals not found in India are also shown to complete a general survey of the Animal Kingdom. In the recently arranged galleries, as for example in the Invertebrate, the Insect, and to some extent in the Fish, and the Amphibian, Reptilian and Bird galleries, detailed explanatory labels have been placed with the exhibits. In the Fish gallery labels in the Bengali language have also been installed as an experimental measure. This arrangement not only makes it possible for the lay public to understand the exhibits, but has for its basis the idea of making the galleries particularly useful to students of Natural History. With this end in view, actual specimens, dissections, models, charts, and other devices for illustrating the peculiarities of the structure of the different groups of the Animal Kingdom are exhibited. In the older galleries there are many exhibits of exceptional interest and, though the arrangement is not quite up-to-date,

they serve the purpose of illustrating the different types of Indian Fauna.

The Reserve Study Collections are of a far greater magnitude than those exhibited in the public galleries. These collections are the basic material on which original work on Indian Zoology has been carried out. The results of these investigations have been or are being published either as separate monographs or in the Records," "Memoirs of the Indian Museum," and other scientific journals. The Reserve Collections are not open to the public, but all *bona fide* students of Natural History can have free access to them.

Attention may also be drawn to the very extensive library of the Zoological Survey of India, which contains books on all branches of Zoology and is undoubtedly the best library of its type in the whole of Asia. It is open to all serious students of Natural History and Zoology.

The Zoological Survey of India is also the custodian of the very extensive collections in the ethnological gallery and the study collections of the Anthropological Section.

These collections consists of (1) arts and crafts illustrative of the life and habits of the people and (2) a large number of human skulls and bones belonging to the different races of India. The first comprise the Andamanese, Nicobarese, the Mongoloid tribes of Assam and such other groups as the Kaffir tribes of the Hindu-kush mountains and the Negrito Kadars and Malayans of the Cochin State. Besides these, the collections contain objects relating to particular items of culture, such as weapons of war, basketry, textiles, agricultural and fishing implements. The musical instruments presented by the late Sourindra Mohan Tagore are the most comprehensive and valuable that exist anywhere in the world, and among the ethnographical objects of the tribes there are many rare specimens. Similarly the collections of skulls, comprise most of the prehistoric crania excavated from several places in India, such as Mohenjo-daro, Harappa and Taxila, and from various megalithic sites. The authentic skulls belonging to several abori-

ginal tribes and groups of people, owing to their rarity, are of considerable importance.

LIBRARIES

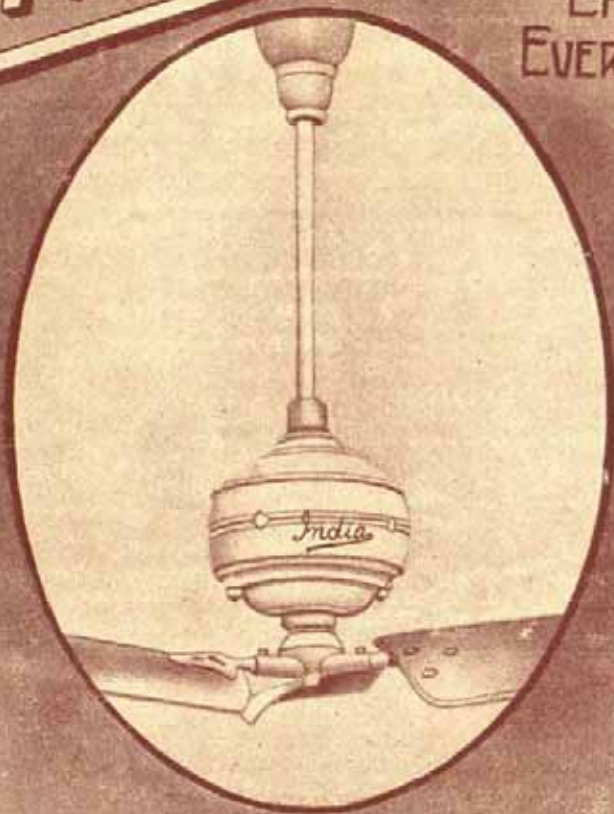
There is in Calcutta a large number of libraries. The various College libraries have already been described. Amongst the Public Libraries have also been mentioned, the Libraries attached to the *Indian Museum*, the *Royal Asiatic Society of Bengal*, the *Vangiya Sahitya Parishad* and the *Sanskrit Sahitya Parishad*. There are small local Public Libraries in different parts of Calcutta subsidised by the Calcutta Corporation. Some of them like the *Chaitanya Library* at 4/1, Beadon Street, *Taltala Public Library* (1882) at 12 Neogypukur Lane, *Narkeldanga Sir Gooroodas Institute*, *Kalighat Institute* etc. are very old institutions. Lately attempts have been made to co-ordinate these institutions and an *All Bengal Library Association* has been started. The Association has assumed an all India aspect and has undertaken also the training of librarians. There is a library in the Writer's Buildings for the use of the Government servants and there is also a Commercial Library under the management of the Government which is public. The biggest library in Calcutta is the *Imperial Library* which was formerly located in the Metcalfe Hall but for want of accomodation it was removed to 6 Esplanade East.

The Imperial Library, Calcutta as now constituted is maintained by the Government of India and owes its foundation to Lord Curzon. It was formed by the amalgamation, Imperial Library in 1902 of the Calcutta Public Library with the then Imperial Library, which itself had been formed in 1891, by combining a number of Departmental Libraries of the Government of India. The Imperial Library was housed from 1902 to 1923 in the Metcalfe Hall, Calcutta and was removed to its present site 6, Esplanade East, Calcutta by the end of 1923.

The management of the Imperial Library is vested in a Council consisting of the Educational Commissioner with the Govern-

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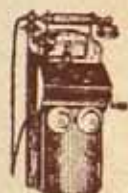
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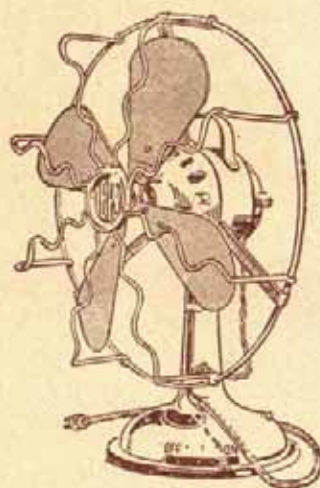


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ment of India, as ex-officio Chairman, and representatives of the Government of Bengal and the University of Calcutta besides nominated members to represent interests outside Calcutta. The Librarian is the ex-officio Secretary to the Council and is the chief executive local officer.

The library contains most of the important books in English dealing with India, including a few of the early editions and important recent books in European languages. Of newspapers and periodicals published in India, the library contains a number of the most important. The library possesses about 3,40,000 volumes. It maintains Reading Rooms, public and private, where facilities are offered to students and researchers. The Ladies' Reading Room is intended exclusively for their use. Books are issued on loan outside Calcutta also against security in cash. The library maintains printed and card catalogues, both by subject and authors. No charges are made for using this library. The Buhar Library is an endowed collection containing about a thousand Arabic and Persian Mss., in addition to printed books in the same languages.

CHAPTER IX

ART AND LITERATURE

LITERATURE

The oldest specimens of Bengali literary compositions are a number of mystic songs which go back to the 10th century A. D. The authors were Buddhist saints who lived in the monasteries of north Bengal such as Vikramasila, Jagaddala etc. The next stage of Bengali literature also was developed in the same part of the country for the songs of Gopichandra and the Vaisnava lyric of Jayareva which represent the early mediaeval stage of the literature were first sung in North Bengal and Nadia. The Vaisnava writers of the mediaeval Bengal were to be found either in Gaur or in Nadia and early missionaries of the Chaitanya movement came from these two places. Sporadic attempts but evidently inspired by the same movement were also made in some parts of Western Bengal.

It is only when we come to the eighteenth century that Calcutta comes to the foreground. The first half of the century saw the introduction of the British power in Bengal, and the second, its accession to an important position in the country. Even then Bharatchandra (1712-60) the great figure of the century lived in Nadia, and not in Calcutta. But meanwhile power had been changing hands and with it the venue of power. The Christian missionaries who had surreptitiously landed at Serampore towards the last decade of the 18th century were holding forth from there and had sometimes tried the power of their eloquence in Calcutta, a place first rising into prominence. The seat of the Company's government in the Presidency, and in some

respects in the whole country, became a place of culture, of opportunities of study and new forces and tendencies soon manifested themselves.

The Kabiwalas, the Yatrawallas, the College of Fort William, the Serampore missionaries, all found Calcutta as the centre of their intellectual activity. Of these the College of Fort William had been established by the Government of Lord Wellesley in 1800 for giving to the officers of the Company suitable training for transacting the Company's business and this training included a thorough grounding in the language and literature of the people. The teachers of this College by their publication gave an impetus to the growth of modern Bengali literature.

In the first quarter of the 19th century David Hare and Raja Ram Mohan Ray (1774-1833) contributed to the coming change and the time is remarkable for the impetus which it gave to, if it did not create, the early prose literature of Bengal and the intellectual effort that went with it. In the second quarter of the century there was a definite improvement in the quality of periodical literature, Isvar Gupta's *Samvad-prbhakara* being started in 1831 and Devendranath Tagore's *Tattvabodhini* in 1843 and in the matter of drama the entertainments specially in 1831 and 1835 when Prasanna Kumar Tagore and Nabin Chandra Basu were great patrons. Immediately after Bengali drama form came in for a good deal of experiment and before the third quarter was over there was the Bengali drama in its present form. Bankim Chandra Chatterji (1838-94) had then created the modern novel and Madhusudan Datta (1824-73), the modern epic and the modern lyric in his famous *Meghnada-badh* and *Vrajangana*. In the last quarter of the century Rabindranath had matured his powers; Bankim Chandra had been contributing largely to the thought and language of his countrymen, the Sadharan Brahmo Samaj had grown from a faction or schism in the religious revival to an independent movement and the Indian National Congress had come into being. All these changes were vitally connected with the literature of the Province by way of relation and inter-relation

which had their repercussions in the 20th century in the matter of political, critical and emotional literature, the new poetry and prose of Bengal; and any new tendencies may in 90 cases out of 100 be traced to Calcutta which leads in the matter.

JOURNALISM

The first printed newspaper in India is Hickey's *Bengal Gazette* which commenced in Calcutta on the 29th January, 1780. Its tone was not very much appreciated by the authorities and they feared that it might some day become a dangerous weapon for preaching sedition against British rule in India. A number of English Journals came into being in course of time and some of these are: Calcutta Gazette, Bengal Hurkara, Government Gazette, Calcutta Monthly Journal, Calcutta Journal, John Bull, Asiatic Annual Journal etc. Some of the Missionary Societies also started their own journals and amongst these, the Periodical Accounts of the Baptist Mission first appeared in 1800 and the Friend of India of the Missionaries of Serampore in 1818.

The appearance of these journals in English contributed directly to the growth of Bengali journalism. The *Bengal Gejet* which was probably the first Bengali periodical was started in 1816 under the editorship of Ganga Kishore Bhattacharyya who worked in the Press attached to the Serampore Mission. Within a few years was started *Dik-Darshan* under the management of the missionaries of Serampore. It was a monthly journal. The same missionaries encouraged by the response which their new venture received started a weekly journal in Bengali called the *Samachar Darpan* under the editorship of Marshman. The first number appeared on Saturday, the 23rd May, 1818. There were Pandits and Bengali scholars to assist the editor in his task. Soon after another Bengali weekly called *Samvad-kaumudi* was started in Calcutta in December, 1821 and Ram Mohan Ray was the *de facto* editor of this weekly. Many Bengali journals now followed suite in course of a few years and some of them were: *Samachar-Chandrika* (March, 1882), *Banga-dut* (May, 1829),

Samvad-Prabhakar (January, 1831), *Jnananvesan* (June, 1831), *Samvad-Purnachandrodaya* (June, 1835), *Samvad-Bhaskar* (March, 1839), etc. Of these the *Jnananvesan* was started by the old boys of the Hindu College and inspired by Derozio's teaching and insistence on the necessity of the exercise of reason in forming judgments and estimate of things in general. Many of these publications were, of course, ephemeral and only signified the burst of desire for unlimited freedom of utterance through the Press. *The Samachar-Darpan* was however the only journal which continued to live till 1852 after having changed hands twice, once in 1842 and another time in 1851.

Two of the Bengali journals published during the latter half of the 19th century rendered valuable service to the cause of Bengali literature. These are the *Vividartha-samgraha* and *Bangadarshan*. The former was published in 1851 by the Vernacular Literature Society and was edited by the great Bengali orientalist, Rajendralala Mitra. The journal had a wide circulation. The *Bangadarshan* appeared in 1873 with Bankim Chandra Chatterji as its editor. It declared "its policy of bridging the gulf between the two sections of the Bengali community—those who are educated in the new fashion, in the western system and those who are not, and counteracting the anglicisation of the educated community." In detailing forth its ideals and aspirations, and in sketching its programme, it is quite modern in tone. Later Bengali magazines have more or less been modelled on and developed from the *Bangadarshan*.

Amongst the existing Bengali monthlies the *Prabasi* is the oldest and still holds its sway over the mind of the reading public of Bengal particularly for the tone of the editorial notes on current topics. The *Bharatavarsha* which was founded by D. L. Roy is 25 years old and has a very wide circulation. Its contribution to the cause of Bengali literature is considerable. Amongst other Bengali monthlies may be named the *Basumati*, *Vichitra*, *Bangashree*, *Parichaya* etc. The *Parichaya* which was formerly a quarterly magazine has set up a high standard of literary criticism and contains up-to-date news of English, French, and German

literature. Amongst the monthly journals in English under Indian management two, the *Modern Review* and the new series of the *Calcutta Review* are the foremost. Amongst the dailies managed by the Indians the oldest is the *Amrita Bazar Patrika*. Amongst others mention should be made of those which are run by the groups of nationalist leaders: *The Liberty*, *Advance*, *Hindusthan Standard* and the *Anandabazar Patrika*, the latter being in Bengali, has probably the widest circulation.

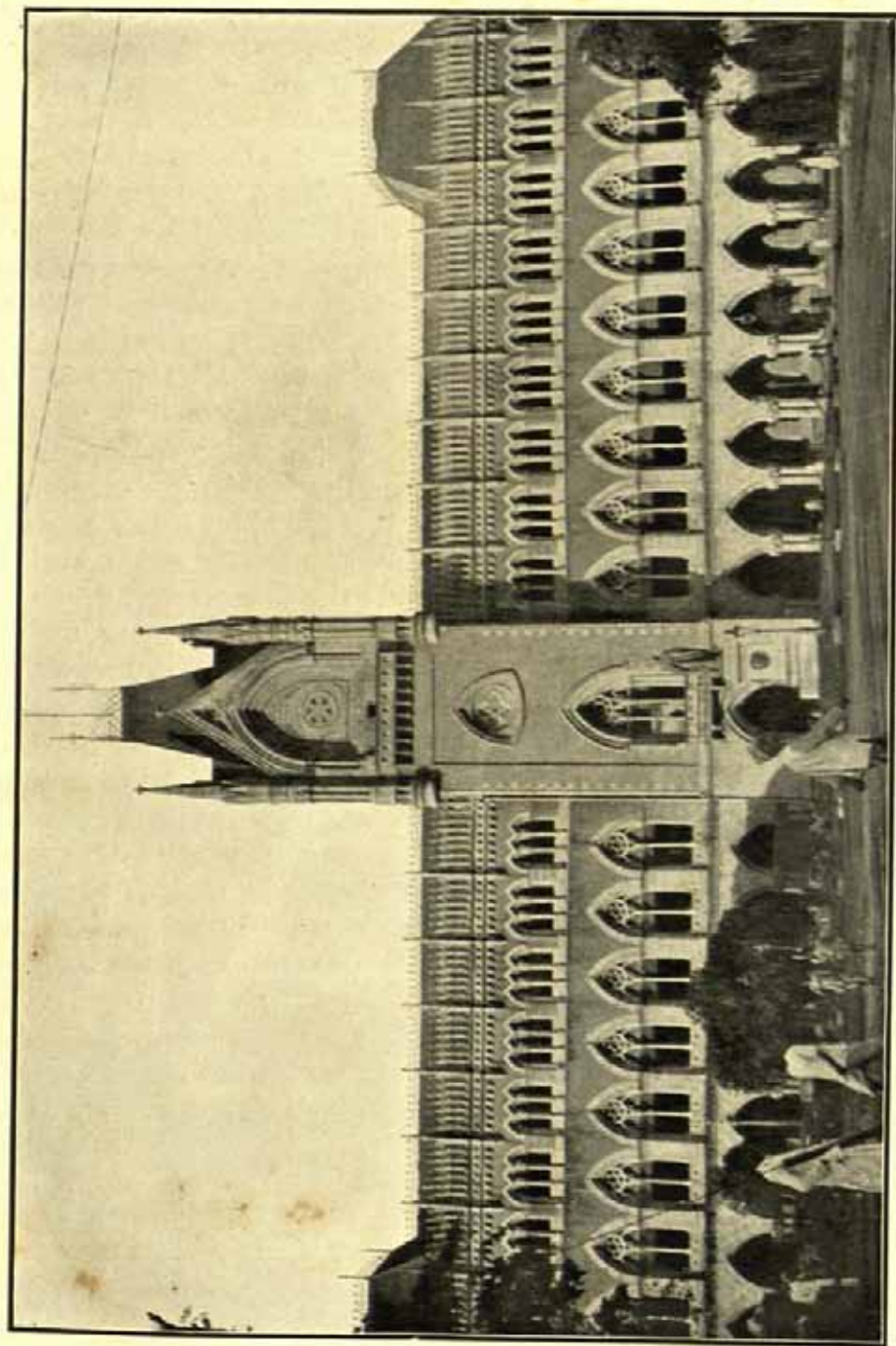
ART

Bengal can boast of artistic traditions which are old. During the Gupta and Pala periods of its history (400-1000 A. D.) Indian sculpture assumed a special character in the hands of the artists of Bengal. The old remains of sculpture which have been unearthed at Paharpur in the Bogra District (500 A. D.) though less refined than the Gupta sculptures strike us specially for the boldness of conception. During the Pala period the Bengal sculptors attain a refinement which at times reaches the height of Gupta art found elsewhere. The reputation of the sculptors of Bengal in this period reached far off countries like Tibet, China and Insulinidia. The services of Bengal sculptors were at times requisitioned in Tibet. The names of two of these artists, Dhiman and Bitapala who lived in the Pala period have come down to us. Affinities between the art of Bengal and the art of Java and Sumatra of this period have been discovered. During the Mahomedan period of the history of Bengal the art of sculpture had apparently deteriorated for want of patronage. But it lived on amongst the professional sculptors who continued to make images of Hindu gods and goddesses in perishable materials like earth and wood for the worship of the Hindus. This tradition has come down to the present day and very recently the professional sculptors have been making a conscious effort, particularly in Calcutta, to revive the old traditions and make images of goddesses like Durga, Sarasvati, and Kali who are universally worshipped by the Hindus, after the old models in stone.

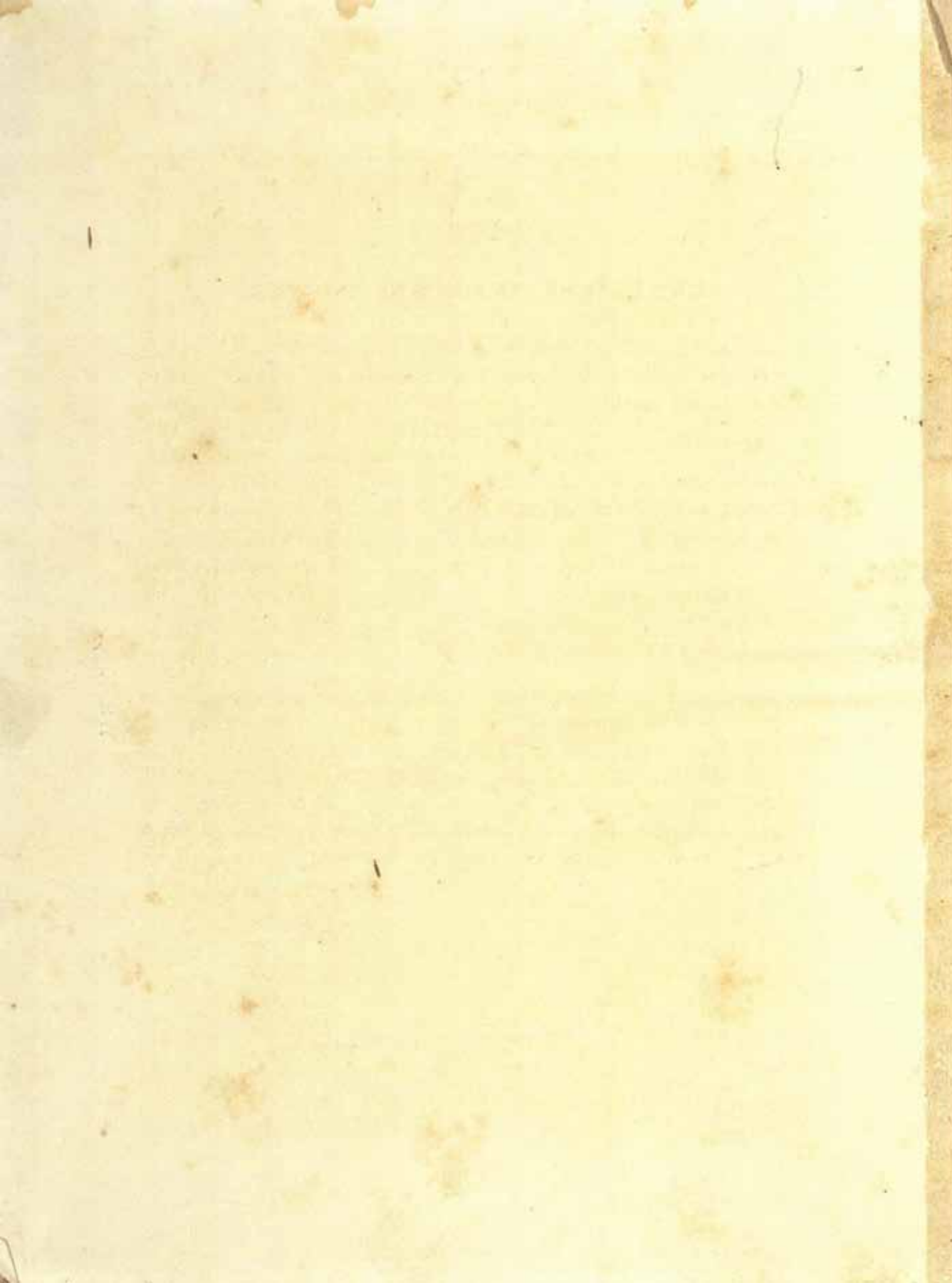
Architectural remains of a very early age have not been discovered as yet in Bengal. But literary traditions of the late Gupta age clearly say that Bengal had a distinct type of architecture which is called *Bangali*. Temples and even mosques of this type have been preserved in different parts of Bengal and one of the best examples is afforded by the famous Kali temple at Kali-ghat. It is characterised by its special arch-like slanting top, which is translated into stone from the thatched houses. Except in the thatched houses Bengal has not developed any style in the construction of residential houses. Since the Mogul times Mahomedan architecture influenced such architecture considerably, particularly in such big cities as Murshidabad, Dacca etc. Calcutta since the time of its foundation did not manifest any special taste in this regard and as a result the architecture in residential houses of Calcutta represents a curious medley of styles like Corinthian, Gothic, Indo-Saracenic etc. Very recently in new residential houses there is at times an artistic touch which shows that some sort of taste is gradually growing which will however take years to take a distinct shape.

In painting, however, Calcutta has taken a lead in modern times. When the traditions of the Rajput and Mogul period were almost dead, no appreciable effort was made to revive the art of painting anywhere in India except in Calcutta. Old traditions lived in Bengal, only in folk art in the *pat* of Kalighat and some districts of Bengal. These were pictures of gods and goddesses, held in high esteem by the worshippers. The painters of *pats* often delighted in painting profane subjects. The women of Bengal kept up the tradition to some extent in the villages in *alpona*, a sort of painting with rice powder diluted in water on auspicious occasions. Decorative art lived in a special kind of embroidery called *Kantha* amongst the women folk. The revivalist movement since the time of Raja Rammohan Ray manifested in various spheres of Bengali life. The art of painting has been no exception to this. This movement was started towards the close of the last century under the leadership of Abanindranath Tagore who is a member of a very talented family. Around him he gathered by virtue of his keen artistic instincts a small

school of young painters. Its members however took a step which has not been approved by the most authoritative art critics. They, instead of copying the west, decided to revive the old art as represented for example in the frescoes of Ajanta. "They sought out the old historical painting of the past, the frescoes of Ajanta and Sigiriya, the religious banners of Tibet, and the miniatures of the best artists of the Mogul and Rajput schools, and on the results acquired from a study of these and other masterpieces of oriental art, the new movement has been founded". The work of the artists sometimes display an originality which is striking. The most talented of the group is certainly Nandalal Bose whose productions have won for him a great reputation. As the Principal of the Kalabhavan or the School of Art in Santiniketan, the University of Tagore, he has been for years a great inspirer of the young artists. Another great painter of the school is Jamini Roy. "It must be admitted that the very nature of his work precludes a generality of appeal. He cannot be easily appreciated by laymen and the whole trend of his life as an artists and as a man has been in the direction of evading popular praise. At the same time, together with Nandalal Bose he has been enthusiastically admired and discussed by lovers of art. Nandalal Bose's painting often reflected moments of our cultural preoccupations. But Jamini Roy paints in timelessness. His pursuit, so undauntedly followed has been after pure form." Though in his earlier days he took up like the other members of the Bengali School and produced pretty pictures with weak lines and sentimental colourings he has now overgrown it. He has attained a mastery of draughtsmanship which is unrivalled by any painter in India. He has settled on the simplest compositional scheme and attains with it at his best moments to dignity and monumentality. As such his execution is of first rate importance in the world of modern Indian Art.



THE HIGH COURT



CHAPTER X.

AGRICULTURE, TRADE AND INDUSTRY

Bengal is the richest province of India and greater portion of it needs no artificial irrigation for the purpose of agriculture.

Agriculture The main agricultural products of the Province are: rice, wheat, barley, maize, pulse, oil-seeds, jute and sugarcane. The total area of Bengal is estimated as 49,254,597 acres which is classified as follows:

Forests	...	4,617,869 acres.
Not available for cultivation	...	9,229,308 acres.
Cultivable waste	...	6,626,134 "
Fallow	...	5,424,285 "
Under cultivation in 1934-35	...	23,357,000 "

Of the area under cultivation only 1,699,448 acres were under irrigation. The richness of the soil of Bengal is better testified by the fact that out of a total area of 26,504,016 acres of cultivable lands in the Punjab 14,424,726 acres and in the United Provinces of 35,662,051 acres—10,650,751 acres were under irrigation during the year 1934-35. The various kinds of crops grown in Bengal will be seen from the following figures:

Rice	...	20,739,700 acres.
Wheat	...	654,700 "
Barley	...	91,300 "
Maize	...	75,200 "
Pulses	...	206,900 "
Other grains	...	1,101,500 "
Jute	...	2,160,400 "
Sugarcane	...	276,200 "
Cotton	...	58,000 "
Others	...	53,400 "

The total area in whole of India under rice cultivation was 79,520,027 and under jute was 2,476,169 acres. So far as these two agricultural products are concerned the position of Bengal is the highest amongst all the Indian Provinces. Bengal's position in regard to rice can be clearly estimated from the following figures :

Bengal	...	...	20,739,700 acres.
Bihar & Orissa	...	...	13,734,000 "
Burma	...	...	12,687,717 "
Madras	...	...	11,055,587 "

According to the official estimate the average yield of various crops *per acre* in Bengal is shown by the following figures :

Winter rice	...	...	1,111 lbs.
Autumn rice	...	...	1,023 "
Summer rice	...	...	1,238 "
Wheat	...	...	816 "
Gram	...	...	935 "
Sugarcane	...	...	4,643 "
Jute	...	...	1,465 "

The agriculture of Bengal has contributed in all ages to the growth of the industries of the Province and Calcutta since its foundation has been controlling the market.

There are ample evidences to show that the Lower Gangetic Valley had a brisk trade with foreign countries from very early times. *The Periplus of the Erythrean Sea*, a Greek text of the 1st century A. D., records—"there is a river . . . called the Ganges and it rises and falls in the same way as the Nile. On its bank is a market-town which has the same name as the river Ganges. Through this place are brought malabathrum, and Gangetic spikenard and pearls, and muslins of the finest sorts, which are called Gangetic." The same text further informs us that silk yarn and silk cloth as well as raw silk coming from China used to be exported from this region in those days to the coast of Madras (Damirica i.e. the Tamil country) and thence to

Early History
of the trade

Egypt. The ships which used to sail to the mouths of the Ganges from foreign lands were very large. Though we do not always get the details about the commodities of export and import there are references in Chinese literature to vessels regularly sailing to and from the port of Tamralipti.

Regarding the trade and wealth of Bengal Vasco da Gama took the following information to Portugal in 1498: "*Benguala* has a Moorish King and a mixed population of Christians and Moors. Its army may be about twenty-four thousand strong, ten thousand being cavalry, and the rest infantry, with four hundred war elephants. The country could export quantities of wheat and very valuable cotton goods. Cloths which sell on the spot for twenty-two shillings and six pence fetch ninety shillings in Calicut. It abounds in silver."

The Mughals called Bengal the "Paradise of India." Caesar de Federici who was in Hooghly in 1567 says that in the Hooghly river the large ships of the Portuguese came up to Betor (near Sibpur, modern Howrah), whence the smaller ships sailed up to Satgaon and loaded "Rice, Cloth of Bombast of divers sorts, Lacca, great abundance of Sugar, Myrabolans dried and preserved, long Pepper, Oyle of Zerseline and many other sorts of merchandise."

Manrique who was in Bengal during the palmiest days of the Portuguese says that the principal things which the Portuguese brought to Bengal from Malacca and Sumatra, were "Brocades, Brocateles, Cloth, Velvets, Damasks, Satins, Taffetas, Taffiosinas, Taffisirias Escomillas or Muslins," of all colours but black, which colour was considered ill-omened in Bengal. From Malacca they also brought cloves, nutmegs, and mace and from Borneo the highly prized camphor. They brought cinammon from Ceylon, and pepper from Malabar. From China they brought silks, gilt furniture such as bedsteads, tables, coffers, chests, writing desks, boxes and very valuable pearls and jewels, for labour being very cheap in

China "these were made in European style but with greater skill and cheaper." From the islands of Maladives they brought sea-shells (*kaurim*) which were during the period of Hindu kings current in Bengal as coins and were known as *cowries*. The bigger kind of shells called *chanquos* were brought from their fisheries on the Choromandel coast. They imported from Solor and Timor both the white and red varieties of sandal-wood which were in Bengal a rich commodity.

About the Portuguese exports from Bengal Pyrard de Laval wrote in the beginning of the 17th century A. D. : "The inhabitants of Bengal both men and women, are wondrously adroit in all such manufactures as of cotton, cloth and silks and in needle-work, such as embroideries which are worked so skilfully, down to the smallest stitches that nothing prettier is to be seen anywhere." According to Manrique (1628) 100 ships were annually laden in the ports of Bengal to export such commodities as rice, butter, oil and wax. The cost of commodities was very cheap :

Rice, a <i>candi</i> (about 500 lbs.			
but in Bengal 1200 lbs.)	...	Rs.	3/- or 4/-
1 contaro of butter (75 lbs.)	...	"	2/-
20 or 25 fowls	about	"	2/-
1 Cow	...	Re.	1/-
200 lbs. of sugar	...		-/7/- or -/8/- ans.

This account of Manrique is confirmed by other independent accounts.

Dacca was famous for its muslins. "There muslins were made fifty and sixty yards in length and two yards in breadth and the extremities were embroidered in gold, silver, and coloured silk. The Emperor appointed a supervisor in Dacca to see that the richest muslins and other varieties of cloth did not find their way anywhere else except to the Court of Delhi. Strain on the weavers' eyes was so great that only sixteen to thirty years old people were engaged to weave. These are the men who with their simple ins-

Dacca Muslins

truments produced those far-famed muslins that no scientific appliances of civilised times could have turned out."

There was local commerce in various other things. The betel-leaf alone used to bring four thousand rupees of revenue to the Governor of Dacca. There was a great trade in salt, sugar, wax, silk and cloth in Hijli. There was vast trade in salt in the island of Sandwip and about 200 ships laden with salt annually sailed from there. In Midnapore scents were manufactured from flowers and scented oils from a kind of grain which were things of great luxury.

The chief English exports from Bengal were cotton and silk, piece goods, raw silk and saltpetre, as early as 1651. The Dacca muslins were exported for the first time in 1666. Its use soon became general in England. The Company established factories at Kassimbazar and Malda for the manufacture of silk. The export of silk and cotton goods to England was soon found ruinous for the English industry and the export had to be restricted by legislations in 1700 and 1720.

Cotton goods however continued to be the main article of export till about 1780. In 1780 about 805,010 pieces were sold in England. Printed cotton goods from Bengal were completely withheld for four years from 1782. The cotton goods exported from Bengal were of various kinds: Cossaes (Khasa), Mulmul, Terrindam, Dooraes, Callicoes, and Hum Hum.

Silk was another important item of export from Bengal. As the Bengal silk was found unsatisfactory, in 1771 silk worms were imported from China to improve the quality of silk cocoons. It had the desired effect and the export of raw silk greatly increased within a few years. Between 1776 and 1780 the annual export of raw silk from Bengal amounted to 560,283 lbs., almost double of the total export from China, Italy and other countries.

Till the end of the 18th century the chief imports from England were the woollens and the metals. In the year 1795 the imports

were—"cloth (bread cloth) 449 bales, long ells 50 bales, broad
 Imports long ell 40 bales, embossed cloth 6 cases
 embossed long ells 17 cases, copper 990 tons,
 lead 300 tons, iron 300 tons."

Decline of
Industries
in Bengal

Towards the end of the 18th century England improved the condition of her industry considerably. There was practically a revolution in English industry and this directly affected the hand-loom industry of Bengal. The cotton industry of Bengal rapidly declined also through other causes. In 1786 export of cotton yarn to England was stopped by legislation. In Bengal the Company had made it almost a monopolistic concern by making advances (*dadans*) to the weavers. This caused great oppression on the weavers. Though Warren Hastings introduced certain ameliorative measures the oppression could not altogether be stopped. This also contributed to the decline of the cotton industry to a considerable extent. Besides improved methods of spinning introduced in England in the meantime enabled the English manufacturers to produce fine cotton goods which could easily compete with the Bengal muslins. From 1783 British cotton goods began to be imported into Bengal. In 1786 the export of Bengal cotton yarns to England was stopped by legislation—a measure which was adopted to help the British Industry.

The indifference
of the Govt.

The Company did not take any step to protect the national industry of Bengal from the competition of its new rival. "It was not even possible to reserve for the Bengal industry its foreign market. It was hardly prudent for a private corporation enjoying special privileges from the British Parliament, to antagonise the manufacturing interest in England by restricting the import of British cotton goods to India. In fact, the Company looked at the question of Lancashire competition, not from the point of view of the ruling power in Bengal, but solely from the standpoint of its own pecuniary interests as a trading body."

Calcutta now occupies the first place in Indian trade. There

is still an excess of exports over imports. In 1929-30 the value of the total export was Rs. 1,40,42,00,000 whereas the value of imports was about Rs. 99,81,00,000. The main commodities of exports are textile materials like raw jute, silk and wool, tea, grains, pulses, oil seeds, shellac, hides and skins, manganese, pig iron, coal and amongst manufactured articles, chemicals, drugs, medicines, metals other than steel and iron, jute, cotton and silk yarns. Salt and Sugar which were in earlier times commodities of export are now imported. The chief commodities of import are cotton goods, metals, oils, petrol, salt, sugar, machineries, railway materials, motor cars, hardware and provisions.

As far as the shipping of the Port of Calcutta is concerned, 996 vessels either with cargo or in ballast entered the port in 1930-

31. Its total tonnage was 3,052,358. Of these 917 vessels with the total tonnage of 2,732,713 were cleared during the year. In the year 1929-30 a larger number of vessels (1,076) entered the Port and 948 were cleared. Bengal trades with a large number of foreign countries like the United Kingdom, Ceylon, Straits Settlements, China, Egypt, Canada, Australia, Germany, France, Belgium, Italy, Japan, America, Java, Borneo etc. The trade with the United Kingdom is however the largest—the total value of imports from the United Kingdom in 1929-30 being Rs. 41,84,94,000 and that of the export to the United Kingdom from Bengal in the same year being about Rs. 32,93,79,000.

After the decline of the handloom industry of Bengal there was no attempt on the part of the people of the country to introduce the modern machineries for the manufacture of cotton goods. Some of the English firms had been gradually introducing latest machineries for the manufacture of jute only. The first impetus to the development of the native industry was given by the National Movement which was started on account of the partition of Bengal in 1905. From this time organised efforts began to be made to establish cotton mills and other factories in order to make the people

economically independent. On account of this movement a large number of mills and factories have grown up in different parts of the country. Though the state of industry in Bengal is not yet as satisfactory as it ought to be, enormous effort has been already made and is still being made for developing it.

The number of factories that worked during the year 1935 was 1595 of which 1183 were perennial and the rest were seasonal concerns. The average daily number of workers employed in various industrial concerns all over the Province of Bengal in 1935 was 513,199. Amongst the number of factories in and near Calcutta there are 20 cotton mills, 16 hosiery and 95 jute mills. The number of match factories is 18. There are besides 14 soap factories, 4 tanneries, 7 glass factories, 129 rice mills, 36 oil mills and 12 flour mills. There are other establishments for the manufacture of silk and woollen goods, gramophone records, biscuits etc. As the Census Reports show, about 140,269 workers of both sexes were working in the industrial establishments in Calcutta with its suburbs and Howrah in 1931. The number of workers in the jute mills has fallen to some extent on account of the trade depression. The following figures of the total number of workers in various concerns will give a true picture of the state of various industries in 1931 :

I. Textiles—

1. Cotton ginning, cleaning & pressing ...	277
2. Cotton spinning, sizing & weaving ...	1,821
3. Jute pressing, weaving & spinning ...	31,754
4. Rope, twine, string & other fibres ...	122
5. Wool, carding spinning etc. ...	14
6. Silk spinning & weaving ...	26
7. Horse-hair etc. ...	5
8. Dyeing, bleaching, printing etc. ...	139
9. Lace, Crepe etc. ...	155
	<hr/>
	34,313

II.	Hide, skins etc	...	...	211
III.	Wood	...	...	12,863
IV.	Metals	...	...	4,104
V.	Ceramics	...	...	1,692
VI.	Chemical products	...	...	1,535
VII.	Food Industries	...	...	9,495
VIII.	Industries of dress & toilet	...	...	31,951
IX.	Furniture Industries	...	...	1,423
X.	Building Industries	...	...	14,024
XI.	Construction of means of transport	...	...	1,146
XII.	Heat, light, electricity etc.	...	...	2,668
XIII.	Misc. industries	...	...	24,003

Total 140,269

As far as the industrial output of Bengal is concerned some details are available about the production of cotton yarns and woven cotton goods. The considerable decrease in imports since 1930 indicates to some extent the growth of native industry. The value of total imports during 1929-30 was Rs. 83,37,65,000 whereas that of 1930-31 was only Rs. 51,20,97,000. This decrease is considerably due to the universal trade depression but the growth of the native industry may be partly responsible for it. During the year 1936-37 about 7871 cotton looms and 278,164 spindles were working in Bengal. In the manufacture of paper Bengal occupies the first place amongst various provinces of India. Bengal produced in 1929 about 34,299 tons of paper of the value of Rs. 1,58,17,520, which was more than six times of the total production by other provinces. An idea of the output of cotton mills in the province may be made from the following figures :

		YARN		
		(in thousands of lbs.)		
		1927-28	1928-29	1929-30
Bombay	...	491,840	329,856	467,289
Madras	...	68,748	69,036	74,480

(in thousands of lbs.)			
U. P.	... 66,611	60,328	76,456
C. P.	... 42,860	44,057	45,111
Bengal	... 34,347	30,022	37,053
Delhi	... 12,107	14,319	18,442

WOVEN GOODS.

(piece goods, chadars, dhutis, etc.)

(in thousands of lbs.)			
	1927-28	1928-29	1929-30
Bombay	... 421,591	284,057	376,413
U. P.	... 25,115	25,698	30,339
C. P.	... 19,217	20,265	21,343
Madras	... 19,949	19,632	20,714
Delhi	... 10,205	12,162	15,939
Bengal	... 8,307	9,959	14,357

Indigo was an article of Indian trade from the ancient times. The Latin writers refer to it as early as the 1st century A. D. Pliny thus writes about Indigo in 70 A. D. : "Indigo (*indicum*) is a colour most esteemed, out of India it . . . it is valued at 20 denarii the pound."

Towards the end of the 13th century the great Venetian traveller Marco Polo recorded : ". . . Indigo. This is made of a certain herb which is gathered and (after the roots have been removed) is put into great vessels upon which they pour water, and then leave it till the whole of the plant is decomposed."

Indigo first appeared in the East India Company's Bengal "investment" in 1780. From the beginning of the 17th century indigo was one of the chief articles of export to England but the supply was at first obtained from Agra, Lahore and Ahmedabad. In the middle of the 18th century indigo was partly obtained from American colonies but this supply was stopped by the War of American Independence.

"In 1779 the Company entered into a contract with one Mr. Prinsep, then resident in Calcutta, to purchase indigo from him at very favourable prices. This induced other Europeans to take to the cultivation of indigo from whom also the Government made purchases. It suffered a heavy loss of £80,000 in these transactions but it succeeded in course of a few decades in placing Bengal in the first rank of the indigo-producing countries of the world. In 1810, out of a total import of 6 million lbs. of indigo into Great Britain, more than 5 million lbs. came from Bengal."

The indigo industry had a prosperous career till about the last quarter of the 19th century. But when synthetic indigo prepared by the German chemists was placed in the market in 1897 the future of the Indian indigo industry was doomed. Henceforth there was a progressive decline in the industry and ultimately it was reduced to insignificance.

Jute was produced in Bengal from very early times but its production was limited to what was required for local consumption. Handwoven jute was an industry of the province in the eighteenth century. The *Ain-i-Akbari* refers to the production of sack-cloth in North Bengal. In the middle of the eighteenth century the export trade in gunnies developed. The President and Council at Bombay enclosed an indent for gunnies in 1753. Similar demands were made from Madras in 1759. This export trade in hand-made gunnies continued to develop for about a century. In the meantime the development in mechanical appliances in Europe brought about the ruin of this hand-loom industry.

In 1828 the first consignment of jute fibre amounting to 364 cwts. (500 maunds) was exported from Bengal. Gunny cloths began to be manufactured by mechanical appliances in Europe from the middle of the 19th century. In 1850-51 the number of gunny bags and cloth exported from Calcutta was 9,035,713 which were valued at Rs. 2,159,782.

In 1854 the first attempt was made to use European machineries in Bengal for the manufacture of Jute. A Ceylon planter, Mr. George Auckland, founded the first Jute Mill at Rishra near Serampore in the Hooghly District. The Mill is now called the "Wellington Mills." The second jute mill, the Baranagar Jute Mills, was founded by the Borneo Company Ltd. in 1857 and the Gouripur Jute Factory was started in 1863-64. Since then jute mills came into existence rapidly. This rapid growth in the number of mills in Bengal and the increasing demand of jute fibre in Europe completely ruined the old hand-loom industry in jute.

"There were 43 mills at work in Bengal and one in Bombay in 1907. The number of looms working in 1887 was 7,164 which increased to 9,841 in 1895, to 23,884 in 1905 and to 30 39,401 in 1917. In 1920, 76 mills were in working order and 16 new mills were under construction. Out of the 76 running mills there were three in Madras, one in the United Provinces of Agra and Oudh and the rest (72) in Calcutta. The capital laid out for these 76 mills up to 1918-19 amounted to Rs. 14,07,14,680 registered in India and to £2,209,716 registered in the United Kingdom, including Rs. 3,42,90,500 and £71,358 respectively in debenture. During 1919-20, fourteen mills were registered in India, with an authorised capital of Rs. 6,62,00,000, showing a great development of the industry in Bengal. The actual consumption of jute by these mills nearly doubled during the period between 1910 and 1920, while the foreign exports of raw jute continued to increase very steadily. There was again an all-round expansion of the trade from 1922 which continued till 1929. The number of mills increased in Bengal from 72 to 89. There has again been a very serious setback since 1930, both for the raw product and the manufactured goods, due to the excess of production of raw fibre as well as that of the mills and also to the unprecedented world-wide trade depression." The number of mills again increased and in 1935 it rose up to 95. These mills are located in the three districts: 24-Perganas, Howrah and Hooghly. The approximate numbers of jute looms and spindles working in the province during the year 1936-37 were respectively 59000 and 1227283.

The jute trade has suffered considerably from the effects of the war. The following figures for the values of exports of raw jute and manufactured goods clearly show it:

	Value of raw jute	Value of manufactures
1913-14	£20,550,929	£18,848,759
1914-15	£ 8,606,802	£17,213,440
1915-16	£10,428,024	£25,318,934
1916-17	£10,858,736	£27,781,156
1917-18	£ 4,302,559	£28,562,050
1918-19	£ 8,480,052	£35,101,466

The official estimate of the jute crop of 1936 placed the outturn at 9,636,000 bales as against 7,240,000 bales in 1935. Arrivals of raw jute in Calcutta and the neighbouring mill area in the year ending March 1937, amounted to 10.1 million bales as compared with 8.2 million bales in the preceding year. Of late the Government of Bengal has adopted the policy of restriction of raw jute and the continuation of their scheme in 1937 resulted in the reduction of sowings by about 3/16ths. of the area of the standard year 1934-35. The total export of raw and manufactured jute during the year amounted to 1,792,000 tons as compared to 1,523,000 tons of the preceding year. This shows an increase of about 18 per cent. The value of these shipments rose by 16 per cent. from Rs. 37 crores to Rs. 43 crores. There has therefore been a constant increase in the quantity of jute exported since 1932:

1932-33	...	563,000 tons.
1933-34	...	748,000 "
1934-35	...	752,000 "
1935-36	...	771,000 "
1936-37	...	821,000 "

Concurrently with the increased overseas demand the Indian consumption of raw jute showed an advance in 1936-37 when the restriction on mill production was removed by the Indian Jute

Mills Association. Indian consumption has gone up to 1,082,000 tons as compared to 805,000 tons of the previous year (1935-36).

For many years past the Indian Jute Mills Association has been endeavouring to start a research scheme to improve the manufacture of jute, its processing and its further commercial development. The scheme has now matured and lately a research laboratory has been opened at 16, Old Court House Street. Experts have been appointed to start the work of research. The first item on the programme is research on the process batching.

First experiment in transplantation of foreign plants in Bengal which ultimately led to the growth of tea industry was made by

Colonel Kyd in the Royal Botanic Gardens at
 Tea Industry Sibpur towards the closing years of the 18th century during the administration of Warren

Hastings. From the available evidence it seems probable that tea plantation was not quite foreign to Eastern India. As early as 1815 an Englishman settled in Assam refers to the existence of tea plants in that part of the country. In 1834 during the administration of Bentinck, tea plants were brought from Assam to Calcutta and after comparison with Chinese plants were found to be identical. This gave an impetus to the development of the Industry and since 1836 Assam tea was placed in Calcutta market. In 1838 Assam tea was sent to the London market for the first time. Towards the middle of the century tea plantation was begun on big scale in Cachar, Sylhet and the Brahmaputra and Surma Valley. A few years later tea plantation was commenced in the Terai, the Bengal Dooars and the Darjeeling district. Since then the industry has taken an enormous shape in Bengal and Assam and the number of tea gardens has largely increased. From the following figures the growth of Indian tea industry and Bengal's place in it will be clearly understood.

INDIAN TEA

1878	199,132 acres of land	...	38,665,000 lbs.
1888	325,313 "	...	99,791,000 "
1898	500,450 "	...	157,251,000 "

1908	548,627	„	...	247,024,000	„
1918	675,718	„	...	380,348,000	„
1928	775,898	„	...	404,153,169	„
1933	816,024	„	...	383,264,115	„
1934	826,300	„	...	399,251,000	„
1935	828,300	„	...	394,429,000	„
1936	832,209	„	...	393,947,000	„

In 1919 of the total tea industry of the world, Bengal contributed 43.2 per cent. Bengal at present has 345 tea gardens and the total area of land under cultivation is 198,000 acres. Bengal thus represents one-fourth of the tea industry of India. Bengal along with Assam has a total area of 630,000 acres of land under cultivation out of 816,024 acres cultivated in whole of India.

I.

IMPORTS TO BENGAL, 1864

Copper, Tutangue Tyer in pigs and Gants.
 Chank—a vast quantity.
 Betelnut.
 Pepper.
 Some sorts of chints.
 Girdles and Sashes of Maslepatam.

ARTICLES OF IMPORT, 1870—1900

1. Animals specially horse. 2. Apparel—principally boots and shoes. 3. Arms and amunitions. 4. Corals. 5. Cotton manufactures—cotton twist and yarn, cotton fabrics, white and coloured piece goods etc. 6. Drugs and Medicines. 7. Liquors wines and spirits. 8. Matches. 9. Metals and metal manufactures, railway materials etc. 10. Mineral oil. 11. Provisions—principally dates, cheese, butter, bacon, ham etc. 12. Salt. 13. Silk fabrics. 14. Spices. 15. Sugar. 16. Tobacco, principally Manilla cigar, imitation Havanas etc. 17. Umbrellas. 18. Woollen goods.

II.

ARTICLES OF EXPORT 1684

Raw silk—a staple commodity, 300 bales of 2 maunds each sailable yearly.

Sugar Tissindy—sailable 3,000 bales of 2 maunds each yearly.

Long pepper—7000 maunds per anm.

Turmerick 1500 maunds per anm.

Saltpetre 2000 to 3000 maunds per anm.

Cotch a commodity which seldom fails, 4000 maunds per anm.

Dammer or pitch 400 maunds per anm.

Ophium 50 to 60 maunds.

Several sorts of piece goods from Cassumbazar :

Petambers, Deryeyes, Chamberbanues, Taffiteas of several sorts, Flowered Lungees, Taramandies, Several sorts of silk, Girdles, Soosias—a few, Flatches, a few.

ARTICLES OF EXPORT 1870—1900

1. Caotchouc.
2. Coal.
3. Cotton and Cotton manufacture, principally raw cotton, Indian twist and yarn, Indian piece goods and other manufactures etc.
4. Cutch and Gambier.
5. Food grains and flour, principally rice, wheat and wheat flour, gram, other grain and pulses etc.
6. Ginger.
7. Hemp.
8. Hides and skin.
9. Horns.
10. Indigo.
11. Jute and Jute manufactures.
12. Oilseeds and vegetable oils.
13. Opium.
14. Saltpetre.
15. Silk and Silk Manufactures.
16. Tea.
17. Tobacco (Manufactured).

CHAPTER XI.

CLUBS, HOSPITALS AND UTILITIES SERVICES

CLUBS

Sports are at present well organised in the city. The public has developed a great taste in various kinds of sports, like, Football, Rugby, Cricket, Tennis, Badminton, Swimming, Rowing etc. Amongst the Europeans, Polo is a favourite sport. In the football season when the shield matches are played not less than 50,000 people assemble to watch it every day and this testifies to the genuineness of interest taken by the public. The most important of the Indian sporting clubs are: *Kumartuli Institute* (founded in 1884), *Mohan Bagan Athletic Club*, *Sporting Union* (founded in 1896), *Aryan Club*, *Mahomedan Sporting*, *East Bengal Sporting* etc. Some of the premier educational Institutions like the Calcutta University, Presidency College, St. Xavier's College etc., have their own sporting clubs for the benefit of their students. Some of the biggest mercantile firms and Government offices also have their own sporting clubs. Of the European sporting clubs the largest organisations are the *Tollygunge Club Ltd.*, the *Jodhpur Club* and the *Royal Turf Club*. Since the excavation of the Dhakuria Lake in south Calcutta, many Rowing clubs like the *University Rowing Club*, the *Calcutta Rowing Club*, have come into existence and they have their respective pavilions on the side of the lake.

The social side of the citizens are now highly developed as is proved by the existence of a large number of Clubs and Associations which exist simply for affording greater facilities for social intercourse. There are communal or sectarian clubs as well as clubs which promote inter-communal fellow feelings. Amongst the latter are

Clubs

to be mentioned the *Rotary Club* which was established in 1919, the *Young Men's Christian Association* (1896), *Young Women's Christian Association*, *Boys' Scout Association* etc. Of the European clubs the biggest organisations are the *Bengal Club Ltd.*, and the *Calcutta Club*. The Mahomedans have their own associations and two of them: The *Mahomedan Literary Society* (founded 1863) and the *Mahomedan Defence Association* are well known. Besides these there is a host of small clubs, associations and societies spread all over the city. Though a number of them is ephemeral they serve as meeting places of various groups of men and youngmen and thus contribute to the growth of the Social life.

The efforts of Mr. Protap Chandra Mozoomdar who was one of the stalwarts of the Brahmo Samaj, were responsible for the establishment of "The Society for the Higher
Calcutta University Institute Training of Youngmen" in 1891. He described the ideal of this Society in one of his speeches to the members in the following terms:—

"The Society for Higher Training was founded with the object mainly of improving the moral character of youngmen. Its fundamental principles were bodily health, mental culture, moral purity, social intercourse and religious advancement. All these principles carried out on an unsectarian basis led to a higher tone of personal character. This was the chief object of the Society."

The great personality of Mr. Protap Chandra Mozoomdar and his untiring missionary zeal for the benefit of the student community won the support and sympathy of His Excellency Lord Lansdowne, the Viceroy of India, and the leading men of the time such as Sir Gooroodas Banerjee, Rev. Kalicharan Banerjee, Dr. Mohendralal Sircar, Moharaja Sir Jotindramohan Tagore and others. The Society received handsome donations from His Excellency Lord Lansdowne and from other sources. Mr. (later Sir) Herbert H. Risley was the first President and Mr. Protap Chandra Mozoomdar was the first Secretary. The Society received a monthly grant from the Government of Bengal and permission to

use the hall and the eastern wing of the Hindu School for lecture hall and the library. In 1893, Maharaj Kumar Benoy Krishna made a substantial donation which formed the nucleus of a fund for acquiring a play-ground for the students. The Society acquired in August 1896 the grounds now known as Marcus Square out of that fund which was strengthened with a donation from the Government of Bengal. In 1896, the name of the Society was changed to Calcutta University Institute. The present commodious building was constructed out of the funds provided by the Government of India and His Excellency Lord Carmichael opened the new building in 1916.

The Institute has now five sections each under a Sectional President. The activities of the Institute under these five sections consist of providing facilities for the moral, mental, and physical improvement of the students. The following are some of its departments:—*viz.*, Library, Study Circle, General Meetings and Debates, Indoor Games, Music and Histrionic Art, Athletics, Socials and Entertainments, Social Service & Ambulance and Gymnasium. The Institute also organises every year Inter-Collegiate Competitions in Recitation, Music, Fine Arts, Indoor Games and Sports. The Institute has two classes of members, Senior and Junior. The Senior Member pays an annual subscription of Rs. 6/- and the Junior Member Rs. 2/-. The Institute started a Students' Fund in 1908 with the object of helping deserving students in prosecuting their studies. This fund received personal contribution from Sir Edward Baker, the Lieutenant Governor of Bengal and Lord and Lady Hardinge. Sir Devaprasad Sarvadhicary took great interest in developing this fund and apart from his personal contribution, he was instrumental in securing donations from various quarters. Mr. Girindra Nath Sen, Attorney-at-Law, also helped in securing a substantial donation. Every year a large number of students receive financial assistance from this Fund.

The Institute plays an important part in forming the life and character of the students in Bengal. The moffusil students

who come to study in Calcutta and are entirely left to themselves find interesting and healthy life in the institute and take with them some ideals of progressive world movements. The local students find recreation and cultural profit in the many-lined activities of the Institute. Thus a bond of sympathy and good fellowship is established between the moffusil and the local students which clears up many misconceptions and prejudices in life and which produces lasting connections and useful contacts after the student-days. They also come in touch with distinguished men and women of different schools of thought and of different countries which inspire them with wide sympathies and broad outlook in life.

HOSPITALS

There appears to have been a General Hospital, a two-storied building, for Europeans in Calcutta as early as 1707. In October, 1707, the Council of Fort-William resolved to build a Hospital selecting as its site "a convenient spot close to the Burial Ground". Towards the cost of this the Company contributed Rs. 2,000/- the rest being met by public subscriptions. The actual site of this Hospital stood to the north of the St. John's Churchyard, where the old Burial Ground was located. In 1762 a temporary hospital was started for the Indian soldiers or *sepoys* who were gradually becoming more and more indispensable since the wars with the Nawab. The hospital for sepoys was housed in a thatched construction at Kidderpore.

In 1768 the Government purchased a garden house to the south of the Presidency Jail on the Lower Circular Road. It was in this house that the Presidency General Hospital was started. The hospital is intended only for Europeans and contains accommodation for 233 patients. There is a small laboratory where Sir Ronald Ross carried out his experiments with proteosoma which solved the great malaria problem.

The Presidency
General Hospital

The first Indian Hospital, other than Military Hospitals for

the sepoys, was opened in 1793. The Calcutta Gazette of the 18th October, 1792, notified that a committee was appointed to raise subscriptions and to prepare a plan and that the management was to be vested in an equal number of European and Indian Governors who were residents of Calcutta. This Hospital was established by Sir John Shore, the then Governor of Bengal. The hospital was housed in different places till at last it was permanently located at 67/1 Strand Road where a building was erected at a cost of Rs. 2,42,471. The hospital was named Mayo Hospital and it was formally opened on the 5th September, 1874.

**The Mayo
Hospital**

The Medical College Hospital which is now known as the General Medical and Surgical Ward of the Medical College was founded in 1848. From the funds of the Old and New Fever Hospitals, the balance of the fund of the Lottery Committee and a splendid donation of Rs. 50,000 from Raja Pratap Chandra Singh of Paikpara, the new hospital building was erected. A new Eye Infirmary was erected to the North-East of the Hospital and has been named after Babu Shama Charan Laha who provided funds for its construction. A ward for the treatment of the Jews has been built at the sole expense of Mrs. Ezra and is attached to main Hospital Building. In July, 1882 the Eden Hospital for women and children was set up and was formally opened by Sir Ashley Eden. The out-door departments comprise: the Chunilal Seal Outdoor Block which accommodates the Medical, Surgical and Venereal Departments. The Old Eye Infirmary Block accommodates the Dental, Ear, Nose, Throat, Chest and Skin Departments. Besides the Pathological Laboratories are located in the different sections, including a department of Electro-Cardiography for the use of the Hospital. Besides these a new Ward called Sir John Anderson Ward has been recently added to the College Hospital. The present accommodation in the Medical College Hospitals stands as follows :—

**Medical College
Hospitals**

General Medical and Surgical Beds	...	326
Prince of Wales' Hospital (Surgical)	...	89
Eden Hospital		
Maternity Beds	...	41
Gynaecological Beds	...	49
Isolation Beds	...	13
New Eden Hospital Extension	...	38
New Eye Hospital	...	139
Cottages	...	11
Ezra Hospital	...	30

Total 736 Beds

Although the Carmichael Medical College is of recent origin the accommodation in its Hospitals is quite respectable. The nucleus of these Hospitals was formed by the Albert-Victor Hospital which was founded through the efforts of Dr. R. G. Kar. The present accommodation in the Hospitals is as follows:—

The Albert-Victor Hospital	...	105
The Maternity Hospital	...	98
Obstetrical	...	52
Gynaecological	...	42
Eclamsia	...	4
The Surgical Hospital	...	163
General Surgical Wards	...	110
Ear, Nose, Throat	...	20
Ophthalmic	...	33
Isolation Hospital	...	72
Observation ward	...	8
Radiology & Radium	...	2

Total 448 Beds

The Government Report on the working of the Hospitals for 1936 mentions 37 Hospitals of Calcutta and says that 852,088 patients were treated during the year 1935-36. This Report does

not mention the *Chittaranjan Sevasadan* at 148, Ashutosh Mukherji Road, which was founded in the memory of late Mr. C. R. Das and is one of the biggest female Dispensaries.

PUBLIC UTILITIES CONCERNS

Between 1881 and 1884 a newly formed Company, under agreement with the Corporation, constructed and brought into use no less than eight tramway routes to Calcutta Tramways Sealdah, Chitpore, Chowringhee, Dhurrumtollah, Strand, Shambazar, Kidderpore and Wellesley. Much this length of tramways was operated on the single track system by means of crossing stations or small sidings at various intervals. The original cars were almost entirely horse drawn, though the Kidderpore route did have a steam tractor, which ceased to ply after 5-30 p.m. Though this system was cumbersome and comparatively slow, it was the only form of transport for the gradually massing population of workers and served its purpose at the time. Calcutta grew still further and developed into a large city. In 1900, under a further agreement with the Corporation, the Company undertook to electrify the system and employ it throughout a standard gauge of tramway. Improvement followed improvement, and between 1903 and 1908 the Tollygunge, Belgatchia, Baghbazar, Harrison Road, Circular Road, Alipore and Behala routes were opened and the Howrah system brought into existence. Between 1910 and 1925 the Rajabazar and Park Circus extensions were constructed and in 1928 the route to Ballygunge Station, better known as Rash Behari Avenue Extension was opened.

The Company now operates approximately 38 miles of double track, excluding sidings and shed lines, and carries about 130 million passengers a year—a turn-over of the entire population of Calcutta in about five days. To serve this vast population, the Company employs a staff of nearly six thousand Indians, of whom about one thousand two hundred are engaged in the Workshops and Power Stations. It employs a fleet of three hundred cars in daily service in Calcutta and Howrah, excluding reserves and

obtains its power in bulk supply from the Calcutta Electric Supply Corporation, the initial motive power for whose engines is derived from coal which is a national product.

And so, Calcutta now is a great city; a place of many things at the same time—a place patterned by thousands upon thousands of individual lives—of men, women and children at work and play. A city of finance, commerce and trade, but in a way, a vast impersonal organisation, a stage on which the players shuttle backwards and forwards daily as the blood courses to and from the heart, a nucleus of a whole region of lesser cities, villages and tributary countryside. This need of movement has been met by a form of transport efficiently managed and worked which most closely approximates the transport ideal of speed with economy and safety. It provides a living for thousands of Indian operatives and in the construction of its cars employs a considerable amount of Indian materials and labour. The benefits brought to this city by adequate transport for its workers, the inter-relationships with industry and commerce, could be developed beyond the purposes of this short history of the Calcutta Tramways Co., whose introduction of improved rolling stock, the very latest in construction and design, combined with various old and new travel facilities have brought the Company to the leading place amongst the Tramways in the East, and its cars the highest deserved popularity.

In the year 1895 the Government of Bengal passed the Calcutta Electric Lighting Act. Shortly after the passing of this Act an application was made to Government for a License, and on the 7th January, 1897, "The Indian Electric Company, Ltd." was formed to take over the Calcutta Electric Lighting License, 1896, which had been granted by Government. This first License was for a period of 21 years from the 29th December, 1896 and covered an area of 5.64 square miles. At the time, 21 years was the longest period for which a License could be granted under the Act. The Indian Electric Company was registered in London with a nominal

The Calcutta
Electric Supply
Corporation Ltd.

Capital of £1,000, but in February, 1897 it was resolved to change the name of the Company to "The Calcutta Electric Supply Corporation Ltd." and to increase the Capital to £100, 000. A prospectus was issued in May, 1897, and the whole of the Capital was over-subscribed on the day of issue.

It was decided to commence operations on a tentative and moderate scale in order to test what the possible demand might be for electric current, and accordingly a Contract was entered into with Messrs. Crompton & Company, Limited, to erect and equip a single Generating Station with plant of 1,000 Kilowatts capacity, capable of dealing with a initial demand for supplying current to about 60,000 carbon filament lamps of 8 candle power, and to provide and lay all the mains required in the compulsory area as set out in the License, for the sum of £65,000. This was to include the actual expenses incurred in obtaining the License, estimated at £3,000, which was the only payment made by the Company for the License. There was no promotion money.

Following the most up-to-date practice in England at that time, it was decided to adopt the "Three-wire system" of distribution generating and delivered Direct Current to Consumers at 450 and 225 volts pressure. The Generating Station was erected on a centrally-situated plot of land in Emambagh Lane, and was equipped with "Crompton" Dynamos, "Willans" Engines, and "Bacock and Wilcox" Boilers. The supply of current from this station was commenced on the 17th April, 1899. Conductors for distributing the current from the Generating Station to consumers were partly underground and partly overhead. Underground cables were laid in main streets and more thickly-populated districts, and overhead wires erected in the outskirts—the general idea being to replace the overhead lines by the more costly underground cables as the demand grew and the load became assured, moving the overhead wires further out. When the business was started it was thought that possibly electric energy might be used for ventilating and power purposes, as well as for lighting, but no one imagined that the days of the handpulled Punkha were numbered, and that the electrically-driven Fan was destined to

overcome the terrors of hot weather in Calcutta. Such, however, was the case, and the popularity of the Electric Fan, as soon as it was introduced to public notice, ensured the immediate prosperity of the Company, for it provided, at least during a great part of the year, the "day load" which is so essential to the economical working of an Electricity Supply Station. As evidence of this, the Company was able to pay a dividend of $3\frac{1}{2}$ per cent. for 1900, the first year after commencement of supply.

The demand for current for Fans as well as for Lights at once showed that the supply of electrical energy met a real public want, and it was soon found that the single Station at Emambagh Lane, generating Direct Current, as originally planned, was quite inadequate to deal with the constantly increasing requirements of the community. This station had therefore to be enlarged from time to time, and the distributing mains extended. Additional Generating Stations, in different parts of the area covered by the License, equipped on similar lines to the first Station, were erected and opened, as under :—

Alipore, in March, 1902, with a capacity of ...	750 KW.
Ultadanga, in September, 1906, capacity of ...	1,200 KW.
Howrah, in May, 1906, with a Gas Suction Plant to supply ...	165 KW.

As a demand for electric current continued to grow, it became necessary to obtain further Licenses from the Government of Bengal to permit of the supply to additional areas. The original License already referred to, dated 1896, covered an area of only 5.64 square miles, while the area for which Licenses are now held is well over 123 square miles. At the end of 1925 there were 520 miles of underground, and 302 miles of overhead mains—a total of 882 miles. Since then the Company has made considerable progress in its business.

Amongst other Public Utilities Services are to be specially mentioned the *Calcutta Station of the All-India Radio* and the *Oriental Gas Company Ltd.*

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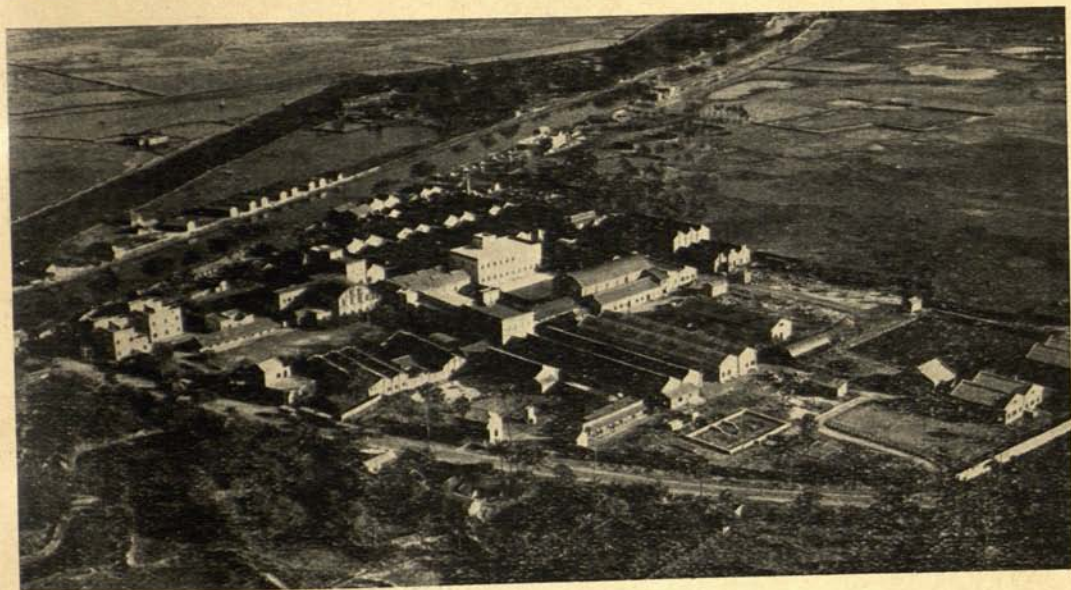
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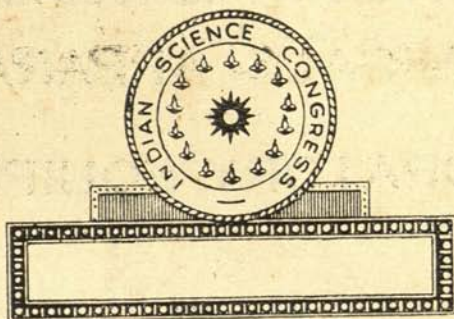
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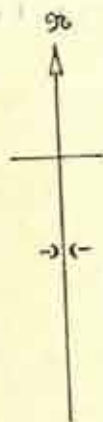
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MAP OF CALCUTTA

SCALE: 3 INCHES = 1 MILE



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4. Mahabodhi Hall
5. Medical College
6. School of Tropical Medicine
7. Institute of Hygiene
8. Science Association
9. Writers' Buildings
10. General Post-Office
11. State Broadcasting
12. Government House
13. High Court
14. Fort William
15. Maidan
16. Imperial Library
17. Victoria House
18. Municipal Offices
19. Hogg Market
20. Museum & Art School
21. Asiatic Society
22. St. Xavier's College
23. Victoria Memorial
24. Alipore Observatory
25. Zoological Gardens
26. The Kidderpore Docks
27. Belvedere
28. Asutosh College and Memorial Hall
29. Kalighat Temple
30. The Palit House
31. Cemeteries (Circular Road)
32. Campbell School & Hospital
33. The Corporation Workshop
34. Sealdah Station
35. The University College of Science
36. Bose Institute
37. The Jain Temple
38. The Vangiya Sahitya Parishad
39. Tallah Tank
40. Howrah Station
41. Bengal Engineering College
42. Royal Botanic Gardens

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